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**SUPERFUND
1992 GROUNDWATER MONITORING REPORT
WASTE DISPOSAL, INCORPORATED
SANTA FE SPRINGS, CALIFORNIA**

**Prepared by: Katherine J. Baylor
Laboratory Support Section
Environmental Services Branch
U.S. Environmental Protection Agency**

January 1993

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INTRODUCTION

Groundwater samples were collected from 11 wells during three sampling events in 1992 (February, May, and August) at the Waste Disposal, Incorporated (WDI) Superfund site in Santa Fe Springs, California.

1.0 OBJECTIVE

Prior to this investigation, groundwater at the WDI site had been sampled twice to characterize contamination at the site; the most recent sampling prior to this investigation was conducted by EBASCO in January 1989. The previous investigations found low-level contamination in the shallow aquifer under the WDI site. The locations of the existing wells do not adequately characterize the groundwater quality of the deeper aquifer; however, previous investigations indicate that it has not been impacted, and was not included in this scope of work.

The objective of this sampling effort was as follows:

To confirm previous analytical results and increase the data base for organic and inorganic parameters in the shallow aquifer at the site.

2.0 BACKGROUND

2.1 SITE DESCRIPTION

The following site history is taken from the WDI Site Final Remedial Investigation Report (EBASCO Services Incorporated, 1989).

The Waste Disposal, Inc. (WDI) site consists of a 43-acre parcel located in the city of Santa Fe Springs, Los Angeles County, California (Figure 2.1). The site is bordered on the northwest by Santa Fe Springs Road, on the northeast by a Fedco food distribution center and St. Paul's High School, on the southwest by Los Nietos Road, and on the southeast by Greenleaf Avenue (Figure 2.2).

The WDI site was operated as a landfill, which, over a period of 40 years, accepted various oil-field and industrial wastes. The wastes were contained in a 1,000,000-barrel capacity concrete-lined reservoir and several unlined waste handling areas. Prior to 1949, operations at the facility were unregulated; between 1949 and 1965-66, Waste Disposal, Inc. operated as a permitted landfill. A profile of the site contamination indicates the presence of hydrocarbons, oil-field wastes containing metals, and volatile organics in the subsurface materials.

2.2 SITE HISTORY

Waste disposal operations at the WDI site from 1949 until closure were sporadically documented. Many documents allegedly pertaining to the materials disposed have been destroyed (Herrera 1986). Thus, a comprehensive site disposal history is not available. However, the Potentially Responsible Party Search conducted by ICF Technology (1987) and a records search and review of aerial photographs, as described below, have provided some information regarding past waste disposal activities at WDI.

The Santa Fe Springs Oil Field was discovered by Union Oil Company of California in 1919. Sometime thereafter (probably between 1919 and 1928), a 1,000,000 barrel (42 million gallon) capacity concrete lined reservoir was constructed at the WDI site. The reservoir was apparently used for petroleum storage. In the late 1920s, the WDI reservoir was decommissioned. Aerial photographs (WCCA 1928, 1937, 1945) indicate that a similarly sized reservoir was located across Santa Fe Springs Road, approximately 800 feet to the northwest, on land owned by Union Oil Company.

A review of aerial photographs (EMSL 1988) shows evidence of waste disposal at the site between the late 1920s and 1949. A 1937 photograph indicates that standing liquid was present outside of the reservoir to the northwest, southeast, and south of the reservoir inside dikes, and to the northwest and southwest of the reservoir outside dikes. Disturbed ground as well as areas of fill were present along Greenleaf Avenue and Los Nietos Road. A 1958 photograph shows standing liquid in the reservoir, as well as inside the diked area to the north of the reservoir, and outside the dike to the northwest (Figure 2.3).

In 1949, Fernando Caneer was granted a permit to operate a dump in the reservoir for the disposal of "solid fill, rotary mud, and other non-acid oil-well waste". In 1950, the County of Los Angeles issued to Whittier Area Disposal Co. (also known as Waste Disposal, Inc.) a permit for operation of the dump, allowing acceptance of rotary drilling mud, clean earth, rock, sand and gravel, paving fragments, concrete, brick, plaster, steel mill slag, and dry mud cake from oil field sumps. At the time, the one-million barrel capacity reservoir, located in the center of the site, was surrounded on three sides by an earth dike, which was itself surrounded by a channel. Many unlined ponds and waste handling areas also existed at the site.

Over the course of the next few years, further permits were issued to allow dumping of acetylene sludge (approximately 220 barrels/week) and 24 hour per day waste disposal. In 1955, a permit was issued to annex an area 600 feet north of Los Nietos Road, and west of the reservoir for the disposal of drilling mud. At least twice during facility operation, the reservoir and dike

system was inadequate to contain disposal liquids, sludges, and mud. In 1956, liquid wastes flowed into and were pumped through "gopher holes" in the dike into a surrounding channel and toward Greenleaf Avenue at a rate of about 5 gallons per minute. In 1962, after heavy rain, liquid containing oily substances seeped through the northerly dike onto the nearby St. Paul's Catholic High School grounds, traveling as far as the baseball diamond.

Between 1955 and 1960, numerous illegal discharges occurred in and around the site in the unlined waste handling areas. Liquids from Union Pacific Railroad and truck washings were disposed of directly on the ground, and facilities adjacent to WDI's eastern edge, along Greenleaf Avenue, also discharged waste liquids onto the WDI site.

As early as 1953, the Los Angeles County sewer system received liquids from WDI; early on, liquids were discharged to a channel leading to Greenleaf Avenue. Later (1960), a pipe from WDI was connected to the Los Angeles County sewer system with approval from the County of Los Angeles Department of Sanitation.

Beginning in 1958, solid fill was accepted and used to grade over the site. By September 1961, the reservoir was 50% full; by June 1962, it was 75% full. By November 1962, the reservoir was completely full of solid material; liquids flowed into diked areas. By October 1964, the site was closed to the public; final grading of the site continued until the end of 1966. Since that time, several businesses have moved onto the site.

2.3 PREVIOUS INVESTIGATIONS

The WDI site currently consists of many individually owned parcels of land (Figure 2.4). Several of these parcels and the central portion of the site, which contains the reservoir and several sumps, have been the focus of previous site investigations.

Prior to the Remedial Investigation, Dames and Moore conducted a series of studies at the WDI site to assess the nature and extent of subsurface contamination. These studies focused on the characterization of the soils and subsurface gas in the Toxo Spray Dust area, Campbell Property and the general reservoir area (Figure 3A). The study conducted in the reservoir area also included groundwater sampling and analysis at three monitoring wells installed around the perimeter of the WDI reservoir. The results of these investigations are summarized in the following sections.

Toxo Spray Dust - Toxo Spray Dust (Toxo) first owned and operated a pesticide manufacturing and storage facility adjacent to the WDI reservoir in 1953. In 1986, Dames and Moore personnel collected two samples from the flooring in the former dry-mix area of the Toxo production building and installed six shallow vapor probes. In late 1986, the Toxo operations building was demolished, and Dames and Moore collected two soil samples 10 inches below the former building location. Floor samples contained methylparathion, ethylparathion, endosulfan I, and endosulfan II. One of the soil-gas samples contained 231,000 ppm (23% by volume in air) of methane and 597 ppm of total nonmethane hydrocarbon as hexane. The soil samples contained malathion, ethylparathion, endosulfan I, aldrin, 4,4'-DDE and 4,4'-DDT. California Department of Health Service required the building to be demolished, which it was in 1986, with approximated 16 cubic yards of soil excavated and removed to a Class I landfill in Kettleman Hills, California.

Campbell Property - The Campbell property, located at the corner of Greenleaf and Los Nietos, was sampled on two occasions in 1986. A total of seven shallow (5 ft) organic vapor probes were installed. The results of soil-gas analyses indicated methane concentrations of 9,500 ppm and 11,200 ppm in two of the samples and a non-methane hydrocarbon contration of 29 ppm in only one sample. Additionally, the Dames and Moore study included 21 cone penetrometer soundings (CPT) to estimate the volume of waste and overburden. The CPT soundings indicated the presence of very soft sump materials possibly including desiccated muds and loose fill. The total volume of waste and overburden was estimated to be about 10,000 to 16,000 cubic yards.

Dames and Moore also drilled six soil borings on the Campbell property, four in areas where drilling muds were previously encountered in the shallow subsurface. Five soil samples with high OVA readings were retained for analysis, and found to contain moderate levels of napthalene, di-n-butyl phthalate, fluorene, phenanthrene, ethylbenzene, 2-methyl napthalene, isophorene, chrysene, and low levels of metals.

Reservoir Area - In 1984, Dames and Moore drilled four borings at the WDI site; one in the center of the concrete reservoir, and three around the perimeter of the reservoir to a depth of 18-22 feet. Samples were collected every 2.5 feet, and screened with an HNu photoionization detector to determine which should undergo laboratory analysis. In 1985, Dames and Moore collected 35 shallow soil samples from the WDI site, the St. Paul High School athletic field, and a vacant lot approximately 1,050 to 1,300 feet NW of the WDI site.

The results of these investigations indicated various levels of barium, cadmium, copper, lead, mercury, nickel, silver, vanadium, and zinc. Two of the borings also contained ethylbenzene,

tetrachloroethene, toluene, trichloroethene, total xylenes, naphthalene, and phenanthrene.

Also in 1985, Dames and Moore installed one upgradient (MW-1) and two downgradient (MW-2,3) monitoring wells. Black (oily) solid waste was encountered during the drilling of MW-1 and MW-2 at approximately five feet depth. The wells were completed, and samples sent for analysis of priority pollutant organics and CAM metals. Because MW-3 was located near a pesticide storage area, the water sample was analyzed for organochloride pesticides and PCBs.

None of the Dames and Moore water samples contained detectable concentrations of either EPA priority pollutants or CAM metals. MW-3 contained 12 ppb of chlordane.

The Remedial Investigation was completed by EBASCO Services, Incorporated, in November 1989. The scope of the RI included soils, groundwater, and subsurface gas investigations, and the results are summarized below.

SOILS - Subsurface soil is the most prevalent contaminated medium at the WDI site. Chemical contamination is widespread. The WDI reservoir and waste handling areas are the major areas of contamination. The reservoir is covered by 5 to 15 feet of "relatively clean" artificial fill, underlain by black mud and sludge. The WDI waste handling areas are from 100 to 900 feet in width and 15 to 30 feet in depth. In general, soil contamination at the WDI site consists of the following:

- o Pesticides/PCBs are present at shallow depths .
- o Volatile organic compounds, predominantly benzene, toluene, and xylene are present at all depths.
- o Semivolatile compounds are present at all depths.
- o Metals compounds are present at all depths.

GROUNDWATER - The results of chemical analyses of groundwater samples from WDI indicate that metals are the most widespread of contaminants. Metals were detected both upgradient and downgradient of the WDI reservoir. Highest concentrations of metals were found in the upgradient wells. Findings of the groundwater characterization study, as well as monitoring well design specifications, are shown in Appendix A. They include:

- o Monitoring well GW-26 was the only well that showed contamination by trichloroethene above the MCL standards. None of the other monitoring wells showed any contamination by volatile organics.

- o Bis(2-chloroethyl)ether was the only semivolatile organic compound that was detected at more than one well, but it was not found consistently throughout the site.
- o Pesticides/PCBs were not detected in any of the monitoring wells.
- o Aluminum, iron, manganese, and selenium were found in concentrations exceeding the MCL standards in almost all wells. Both upgradient and downgradient wells showed high concentrations of these metals.

SUBSURFACE GAS - In general, the subsurface gases are distributed in and around the reservoir and waste handling areas. The reservoir and immediate surrounding area has subsurface vinyl chloride, benzene, and lower concentrations of chlorinated hydrocarbons as trace constituents in the gas. Methane was also identified in and around the reservoir, but not commonly elsewhere.

2.4 GEOLOGY AND HYDROGEOLOGY

Regional geology - The WDI site is located northwest of the Santa Ana Mountains, a dominant part of the northern Peninsular Ranges of coastal southern California which forms the eastern margin of the Los Angeles basin (Figure 2.5). Situated in the central block of the Los Angeles Basin, the WDI site is bounded on the northeast by the La Habra syncline and on the southwest by the Coyote Hills (Santa Fe Springs) anticline in an area commonly referred to as the Santa Fe Springs Plain. This plain is a gently rolling topographic feature which has probably been warped by the Santa Fe Springs-Coyote Hills anticlinal system and dips gently both to the northeast toward Whittier and to the southeast toward the Downey Plain. The difference in elevation ranges from 100 to 175 feet above mean sea level.

The surface of the Santa Fe Springs Plain and Coyote Hills reflects the structural high which trends northwest from the Coyote Hills in Orange County and is primarily developed in the underlying formations of Miocene and Pliocene age. In these sediments, the uplift consists of anticlinal folds which contain the Santa Fe Springs, Leffingwell, and West Coyote oil fields. The San Pedro and Lakewood formations are similarly folded across the uplift, and the folds developed in these sediments generally correspond to the underlying structures.

The Lakewood formation is exposed on-site at the surface and includes what has previously been termed "terrace deposits," "Palos Verdes sand," and "unnamed upper Pleistocene deposits." Maximum thickness of this formation has been measured to be about 340 feet at Lakewood, California. Materials range in size from cobbles to clay, with fine deposits separating the lenticular

sandy and gravelly beds.

Site Specific Geology - The WDI soil boring logs and cross sections indicate that WDI strata consist of fluvial deposits. The soils are coarse grained, occasionally pebbly, channelized sands surrounded in places by finer grained, lower energy, and laterally extensive beds. This suggests a braided river system depositional environment. The variable thickness (3-20 feet) and variable lateral extent (30-1500+ feet) of individual channel deposits below the site is a result of the continuous active fluvial channel-cutting/depositing events.

Regional Hydrogeology - The WDI site is situated in the Whittier Area of the Central Groundwater Basin. The Whittier Area is overlain by the La Habra Piedmont slope and part of the Santa Fe Springs Plain and the Coyote Hills. The known water-bearing sediments, extending to a depth of about 1,000 feet (800 feet below sea level), include Recent alluvium and the Lakewood and San Pedro formations (Figure 2.6). A part of the underlying Pliocene and older deposits may also contain water of good quality. Electric logs of oil wells indicate fresh water at a greater depth than has been penetrated by water wells.

Site-Specific Hydrogeology - The local hydrogeology is described based on information extracted from the boring logs and the water level elevations. In general, groundwater has been encountered at a depth of 46 to 65 feet below ground surface and from 91 to 106 feet above mean sea level. Accordingly, groundwater is approximately 34 to 44 feet below the bottom of the reservoir and 22 to 47 feet below the waste handling areas. The general direction of the groundwater flow is to the south and southwest (Figure 2.7).

3.0 MAPS AND FIGURES

Figure 2.1: Site Location map

Figure 2.2: WDI site and monitoring well locations

Figure 2.3: 1958 Aerial photo of WDI site

Figure 2.4: Land Use Map

Figure 2.5: Regional Geology

Figure 2.6: Regional Aquifer Cross Section

Figure 2.7: Groundwater Level Contour Map, December 1991

Figure 5.1: Water level elevation changes, 1992

4.0 METHODS AND SCOPE OF WORK

The methods used for collection and analysis of groundwater samples and water level measurements for this investigation are outlined in the document, Superfund Field Sampling and Analysis Plan, Waste Disposal Incorporated, Santa Fe Springs, California, 1992, U.S. EPA Region IX, Laboratory Support Section. Summarized below are the procedures that were followed and any deviations from the sample plan.

Quarterly groundwater sampling at the WDI site was performed by personnel of the U.S. EPA, Environmental Services Branch, during the months of February, May, and August of 1992. Eight shallow wells and three medium level wells were sampled during this investigation. In addition to the eleven groundwater samples collected, the following field quality control samples were also collected: field duplicate samples from well GW-1 and GW-7, two equipment blanks and one field blank.

Well purging was conducted with either a decontaminated PVC bailer or decontaminated piston pump. Well sampling was conducted with decontaminated teflon bailers. Prior to sampling each well, the water level was measured and the well was purged by removing at least three well volumes of water. Electrical conductivity, pH, and temperature were monitored and allowed to stabilize prior to sample collection.

The samples collected were sent for laboratory analysis to either the U.S. EPA Region 9 laboratory in Las Vegas, or a laboratory in the Superfund Contract Laboratory Program (CLP). The following analyses were performed on the groundwater samples collected during these three sampling events:

Organic Analyses: Volatile Organics
 Semi-volatile organics
 Pesticides/PCBs

Inorganic Analyses: Total Metals
 Dissolved Metals

In addition, the following field measurements were made: pH, conductivity, temperature, and turbidity (Table 4.1).

Problems in the field or deviations from the procedures outlined in the sample plan are listed below:

February 1992: Well GW-9, which was originally included in the sampling network, was not sampled. Excessive rain prior to and during the sampling event left a pool of standing water over the well cover. During an attempt to sample, some stormwater run-off entered the well; therefore, this well was deleted from the 1992 sampling schedule due to the possibility of cross-contamination

from stormwater run-off.

May 1992: De-ionized water was used in place of tap water in the decontamination procedure. Due to uncertain quality of locally available tapwater, it was determined that all water for decon should be of de-ionized quality or better. The lock on well GW-04 was rusted shut; WD-40 was used to loosen it. Only 1.9 well volumes were purged from well GW-28 due to sampler's miscalculation of well volume; however, the pH, temperature, and conductivity readings were stable prior to sampling.

August 1992: The locks on wells GW-7 and GW-26 were rusted shut; WD-40 was used to loosen them.

5.0 RESULTS OF ANALYSES

A summary of the results of the 1992 groundwater investigation is discussed below. The following wells were each sampled three times during 1992: GW-1, 2, 4, 7, 10, 11, 23, 24, 26, 28, 30.

5.1 GROUNDWATER ELEVATIONS

Water levels in all the wells (27 total) were measured in December 1991, and a groundwater elevation contour map was prepared (see figure 2.7). No significant change from previous groundwater elevation contour maps was found; groundwater flow is generally south and southwest through the site.

Water levels were measured at each well sampled during each sampling event (Table 5.1). Water levels were measured before purging and after sampling each well, and no significant drawdown was detected in any well. From December 1991 to August 1992, the water level increased in all wells (Figure 5.1). The increase is most apparent between the February and May events, in which the water level rose by an average of 1.23 feet.

5.2 GROUNDWATER QUALITY

Volatile Organics The following volatile organics were detected:

<u>Well #</u>	<u>Date</u>	<u>Amount (ppb)</u>	<u>Qualifier</u>	<u>Contaminant</u>
11	5/92	1	J	Bromodichloromethane
11	5/92	8	J	Tetrachloroethene
11	8/92	17	N	Tetrachloroethene
26	2/92	8	J	Trichloroethene
26	5/92	7	J	Trichloroethene
7	5/92	1	J	Carbon disulfide
7	8/92	41	N	2-Butanone (MEK)
24	2/92	2	J	Tetrachloroethene

"J" qualifier indicates that values are estimated; data is valid for limited purposes. The results are qualitatively acceptable unless otherwise noted. "N" qualifier indicates presumptive evidence of the presence of the material. Compound identification is considered to be tentative, and the data are usable for limited purposes.

The presence of tetrachloroethene in well GW-11 and trichloroethene in well GW-26 confirm previous results. Bromodichloromethane in well GW-11 and carbon disulfide in well GW-7 were both found at a level of 1ppb during the May sampling event, and are probably mis-identified compounds. These compounds were not found in any other well at any time. The finding of 2-Butanone (MEK) in well GW-7 was probably caused by field contamination, as WD-40 was used to loosen the lock on this well during the August sampling event. MEK was not found in any other well at any time.

Acetone, chloroform, toluene, and methylene chloride were found in several wells and blanks, and were probably caused by field and lab contamination. None of these compounds were found in the wells above the levels found in the field and equipment blanks.

Semi-volatile Organics- Several phthalates, including Di-n-butylphthalate, bis(2-Ethylhexyl)phthalate, and butylbenzylphthalate were found at low levels in the blanks and samples. These are common laboratory contaminants and are probably artifacts.

Pesticides/PCBs- No pesticides/PCBs were detected in any wells.

Metals- Both total and dissolved metals were found in all the wells. Samples were analyzed for total and dissolved (filtered) metals. The use of total metals data is considered to be more

protective of human health, but may result in a high bias due to particulates (sediment) in the groundwater, which is not normally a component of drinking water. Dissolved metals are obtained by filtering the sample through a 0.45u filter. The filtered samples are more representative of drinking water, and of groundwater that is in a mobile phase.

The following metals were detected in some or all of the wells: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, sodium, vanadium, and zinc. Tabular results are presented in Table 5.2, and graphed in Appendix A. The average values listed in the Table 5.2 and the graphs in Appendix A were determined by computing the mean of quantifiable metals (i.e., non-detects were not included in the averages). Non-detects are shown in Appendices B, C, and D with a "U" qualifier. The "U" qualifier indicates that the metal was not detected above the Instrument Detection Limit (IDL).

Aluminum (total) ranging from 2-28 ppm was found in all the shallow wells; in two deep wells, aluminum was detected below 1 ppm. Dissolved aluminum was not found in any well.

Antimony (total) was found in shallow wells GW-1 and GW-28 during the August sampling event at approximately 15ppb; dissolved antimony was detected in well GW-1 during the August event, and wells GW-2 and 30 in February.

Arsenic (total) was found in most of the shallow wells at levels below the MCL (currently 50ppb); in the dissolved form, arsenic was only found in GW-11.

Barium (total) was found in all the wells at levels from 30-500 ppb, but below the MCL of 1000ppb. Dissolved barium was uniformly found in all the wells at less than 50 ppb.

Beryllium (total) was found in all wells at levels below 1.1 ppb. As a dissolved constituent, beryllium was found at higher levels (up to 2.2ppb) in all the wells.

Calcium (total) was found in all wells to 300 ppm, and as a dissolved constituent at similar levels in all wells.

Cadmium (total) was detected in six of eight of the shallow wells during the February sampling event at levels ranging from 5.4 to 14.2 ppb, all above the MCL of 5ppb. Cadmium was not detected in any wells during the May or August sampling events. Dissolved cadmium was not found in any well.

Chromium (total) was found in all wells at levels approaching the MCL of 50ppb; as a dissolved constituent, chromium was found below 10ppb in 9 of the 11 wells.

Cobalt (total) was found in five shallow wells to 24ppb, and not found in any deep wells. Dissolved cobalt was not found in any well.

Copper (total) was found in all wells, but at levels far below the MCL of 1000 ppb; as a dissolved constituent, copper was found below 10 ppb in several wells.

Iron (total) was found in all the shallow wells at levels greatly exceeding the MCL of 300ppb, and in the deep wells at levels near the MCL. As a dissolved constituent, iron was found in all wells at levels very far below the MCL.

Lead (total) was found in several wells at levels approaching the 20 ppb MCL, and exceeding the MCL in GW-01 in February. As a dissolved constituent, lead was detected in most of the wells, but at levels far below the MCL.

Magnesium was found in all wells, as both a total and dissolved constituent.

Manganese (total) was found in all shallow wells at levels greatly exceeding the MCL (secondary), and in deep wells near the MCL. As a dissolved constituent, manganese was found at very high levels in well GW-10, and at lower levels in most of the other wells.

Mercury (total) was detected in eight wells below the MCL of 2ppb, and in six wells as a dissolved constituent, also below the MCL.

Nickel (total) was found in all wells except GW-2, 7, and 24. As a dissolved metal, nickel was found in GW-2, 7, and 24, but not in GW-4, 10, 11, 26, and 30.

Potassium (total) was found in all wells, and at similar levels as a dissolved metal.

Selenium (total) was found in all wells at levels exceeding the MCL of 10 ppb. As a dissolved metal, selenium was found in all wells at levels exceeding the MCL. Values ranged from 11.9 to 89.7 ppb.

Sodium (total) was found in all wells, and at similar levels as a dissolved constituent.

Vanadium was found as a total and dissolved metal in both shallow and deep wells; no MCL has been set.

Zinc (total) was found in all wells at levels greatly below the MCL of 5ppm; as a dissolved metal, zinc was also found below the MCL.

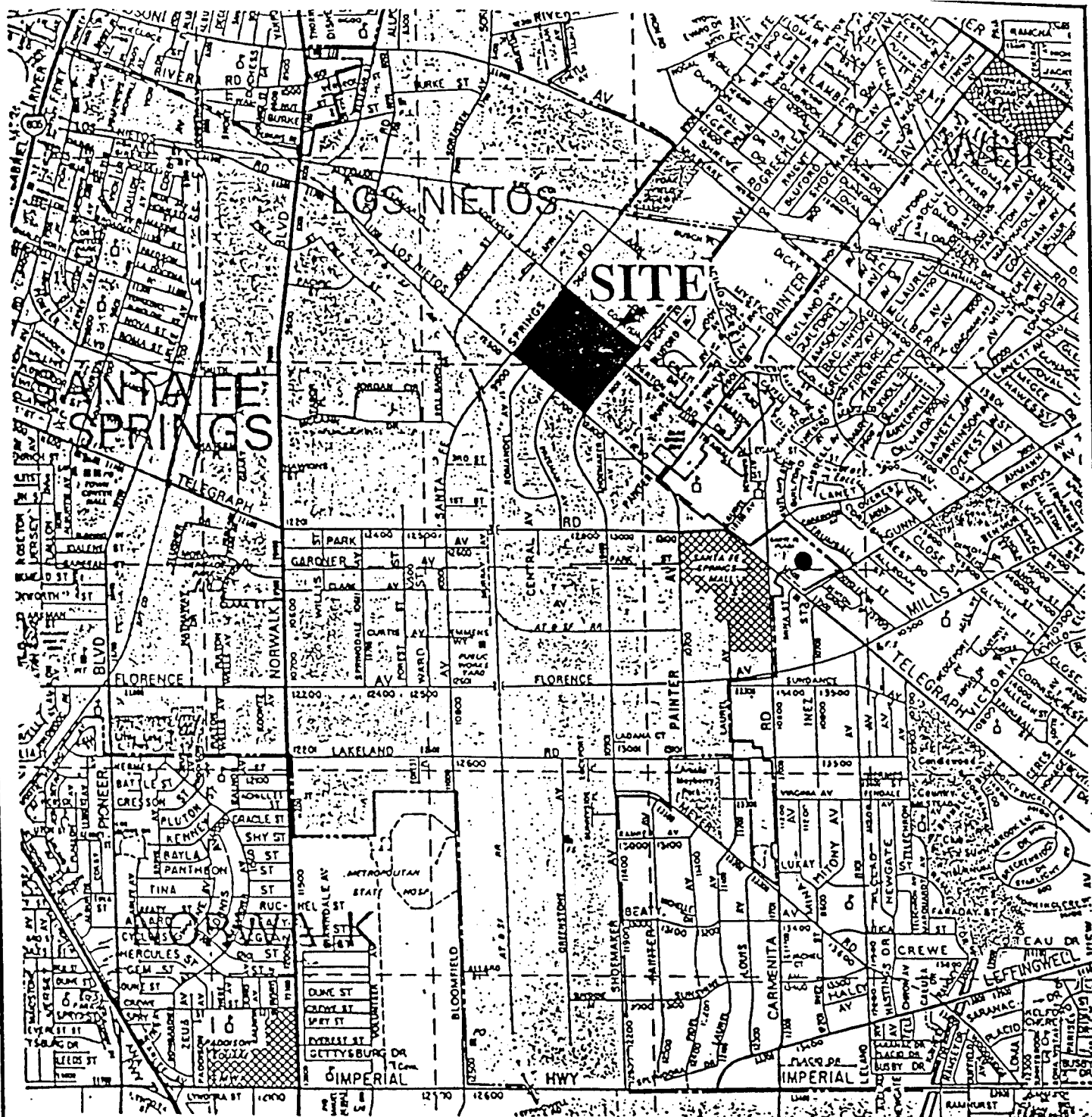
6.0 CONCLUSIONS

Data collected during the 1992 monitoring is consistent with previous investigations at WDI with respect to both the hydrology and chemical properties. In particular, the presence of low levels of trichloroethene and tetrachloroethene was confirmed.

The presence of metals in the groundwater beneath the site was confirmed. Total (unfiltered) metals were found at levels exceeding the Safe Drinking Water Act Maximum Contaminant Limit (MCL) for cadmium, chromium, iron, lead (one well), manganese, and selenium. Dissolved (filtered) metals were found at levels exceeding the MCL for manganese and selenium.

The use of total metals data is considered to be more protective of human health, but may result in a high bias due to particulates (sediment) in the groundwater, which is not normally a component of drinking water. Dissolved metals are obtained by filtering the sample through a 0.45u filter. The filtered samples are more representative of drinking water, and of groundwater that is in a mobile phase.

Cadmium, chromium, lead, and selenium are primary MCLs, and iron and manganese are both secondary MCLs. Primary MCLs are health-based, enforceable standards; secondary MCLs are generally associated with aesthetic qualities such as taste, odor, or color.



SCALE

1" = 1/2 mi.

SOURCE: Adapted from Thomas Brothers Guide, 1988.

Figure 2.1 Site location map

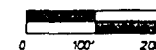
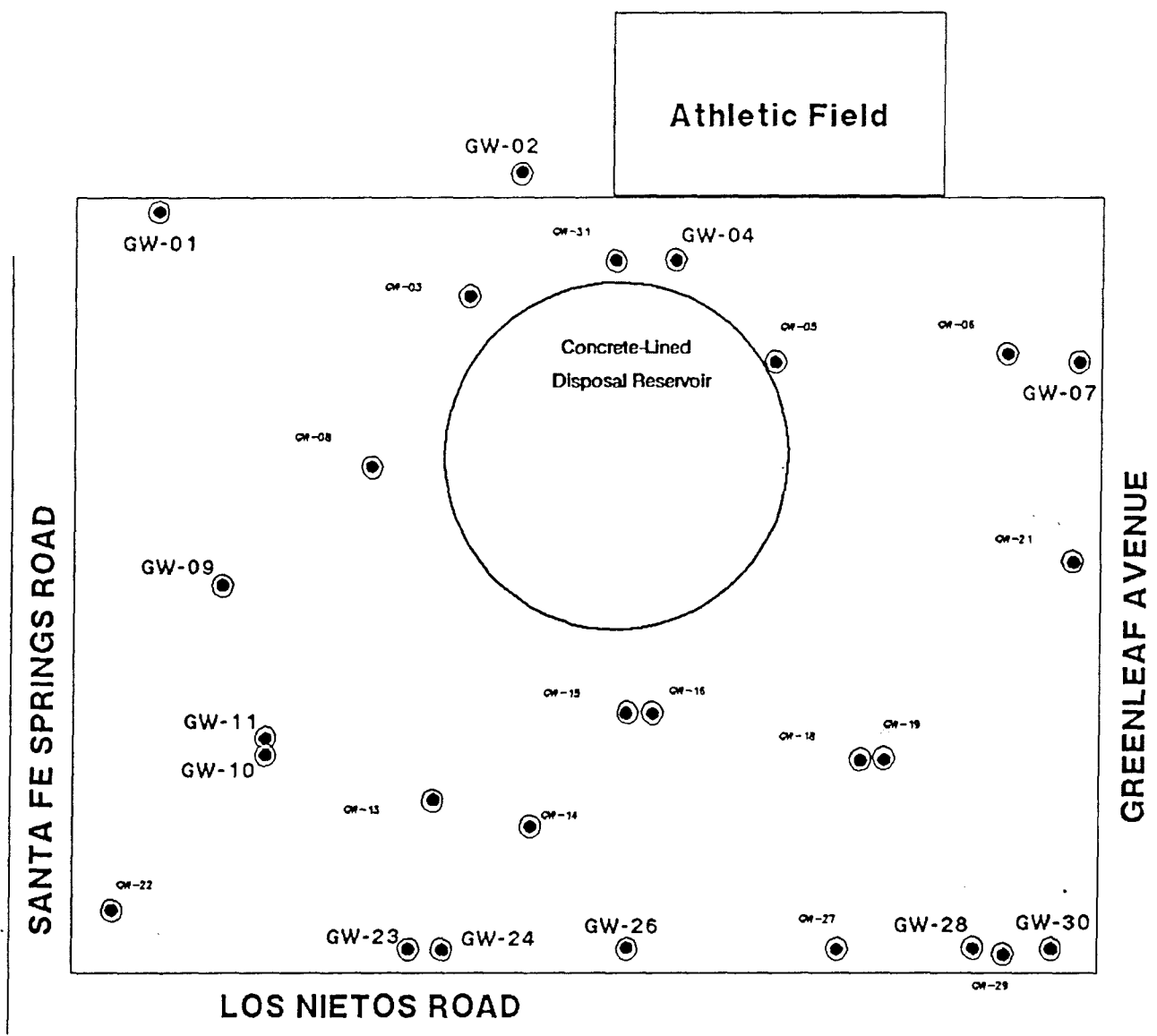
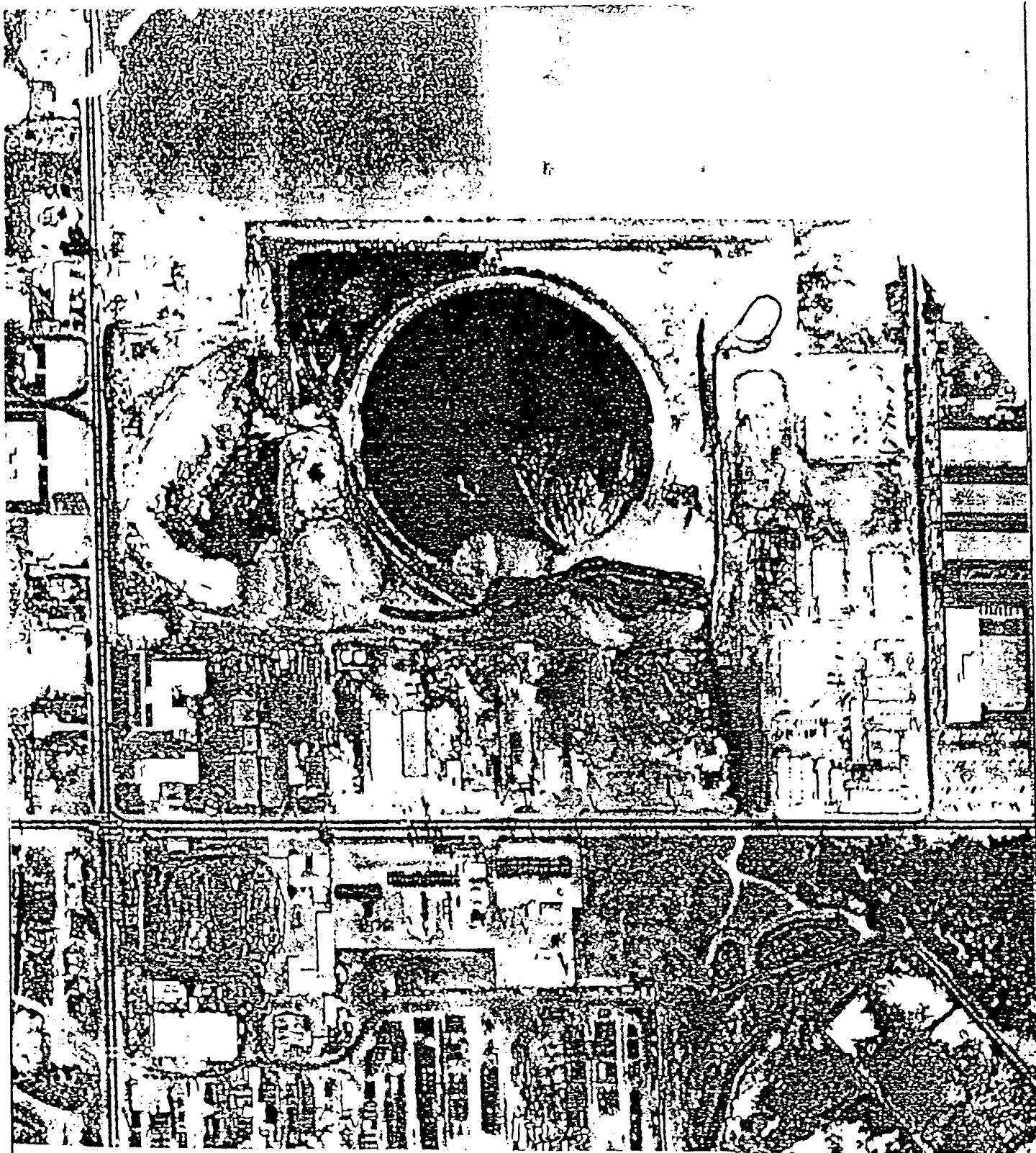


Figure 2.2 Site map and well locations.



1958 AERIAL PHOTO
WASTE DISPOSAL INC.

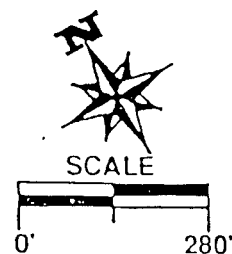








Figure 2.3 1958 Aerial photo of WDI site

LAND USE MAP WASTE DISPOSAL INC.

LEGEND:

-  Existing Buildings
-  Parcel Number
-  Parcel Boundary (approximate)
-  Site Boundary
-  Fence
-  Businesses Encompassed by Sump

Parcel Owners:

- 3 - Raymond Holbrook
- 4 - Dia-Log Company
- 7 - Ralph Horowitz
- 11 - Ovil Proctor
- 12 - Ovil Proctor
- 21 - John Maple, Lucille Ferris
- 22 - John Maple, Lucille Ferris
- 24 - Raymond Halbrook
- 25 - Joe Bennett
- 26 - Joe Bennett
- 28 - James Mersits
- 29 - James Mersits
- 30 - Joe Bennett
- 32 - David Neptune
- 37 - George Ortega
- 41 - Gene Welter
- 42 - Meade Peoples
- 43 - Ed Timmons
- 44 - Gale Searing
- 49 - Phil Campbell
- 50 - William Elliot
- 51 - Joe Bennett

Scale In Feet
0 100' 200'

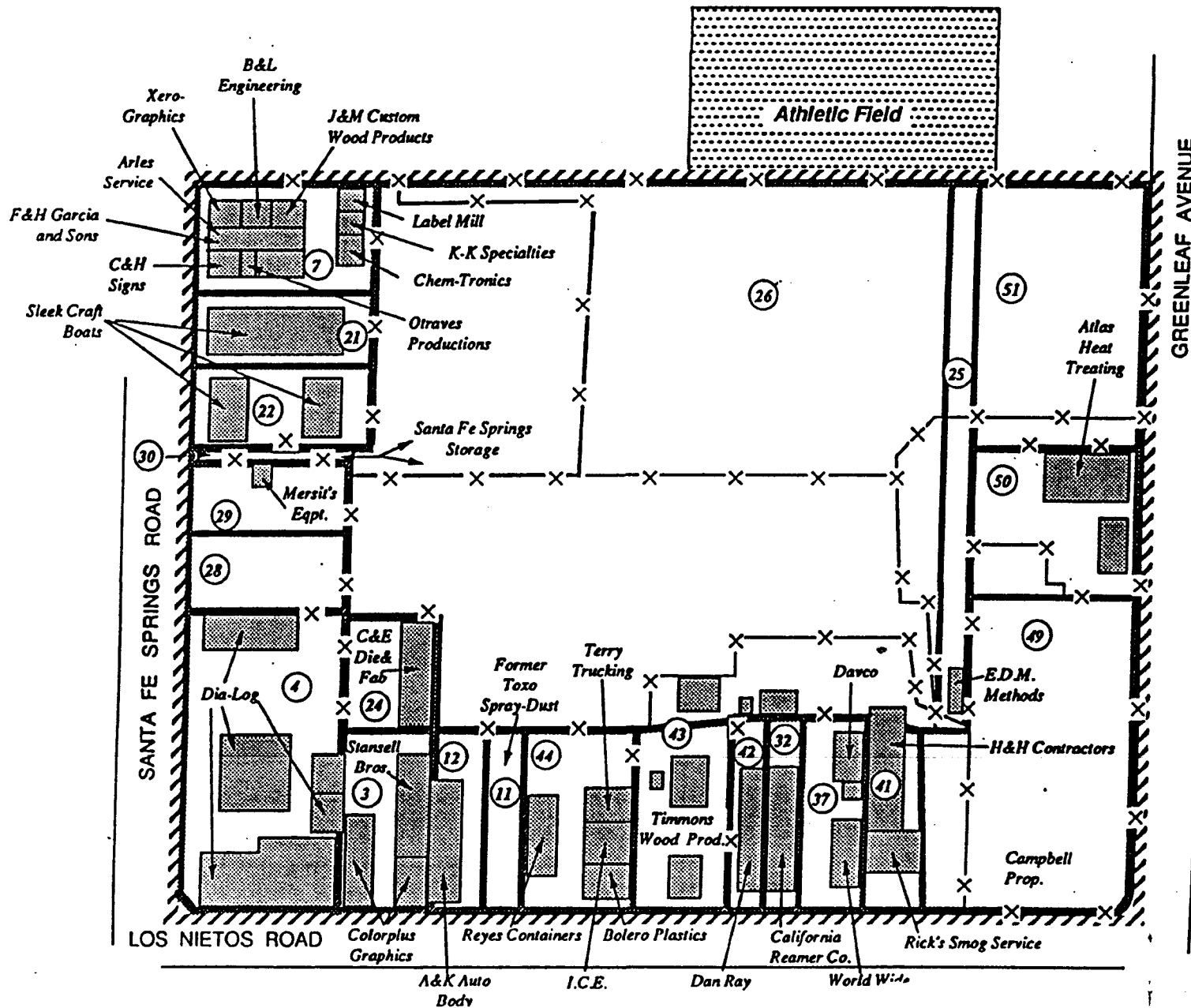
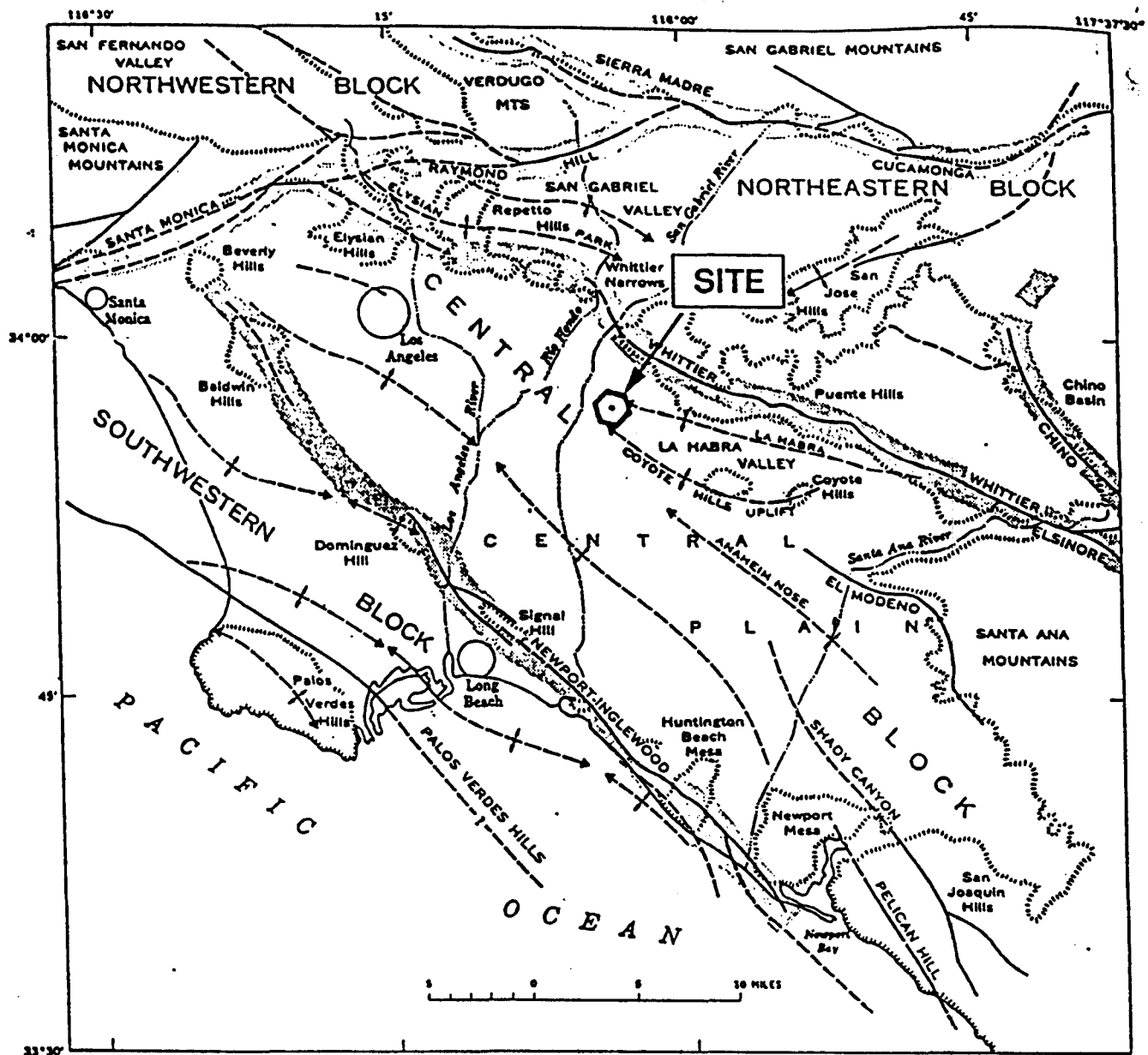
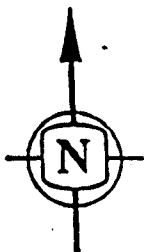


Figure 2.4 Land Use Map



EXPLANATION

- | | | | |
|--|---|--|---|
|
WHITTIER
Fault or fault zone
<i>Dashed where approximately located;
 queried where doubtful</i> |
Anticline
<i>Dashed where approximately located</i> |
Syncline
<i>Dashed where approximately located</i> |
Boundary of structural block |
|--|---|--|---|



LOS ANGELES BASIN PHYSIOGRAPHIC AND MAJOR STRUCTURAL FEATURES

SOURCE: Adapted from Yerkes, R.F., et. al. (1965).

Figure 2.5 Regional Geology

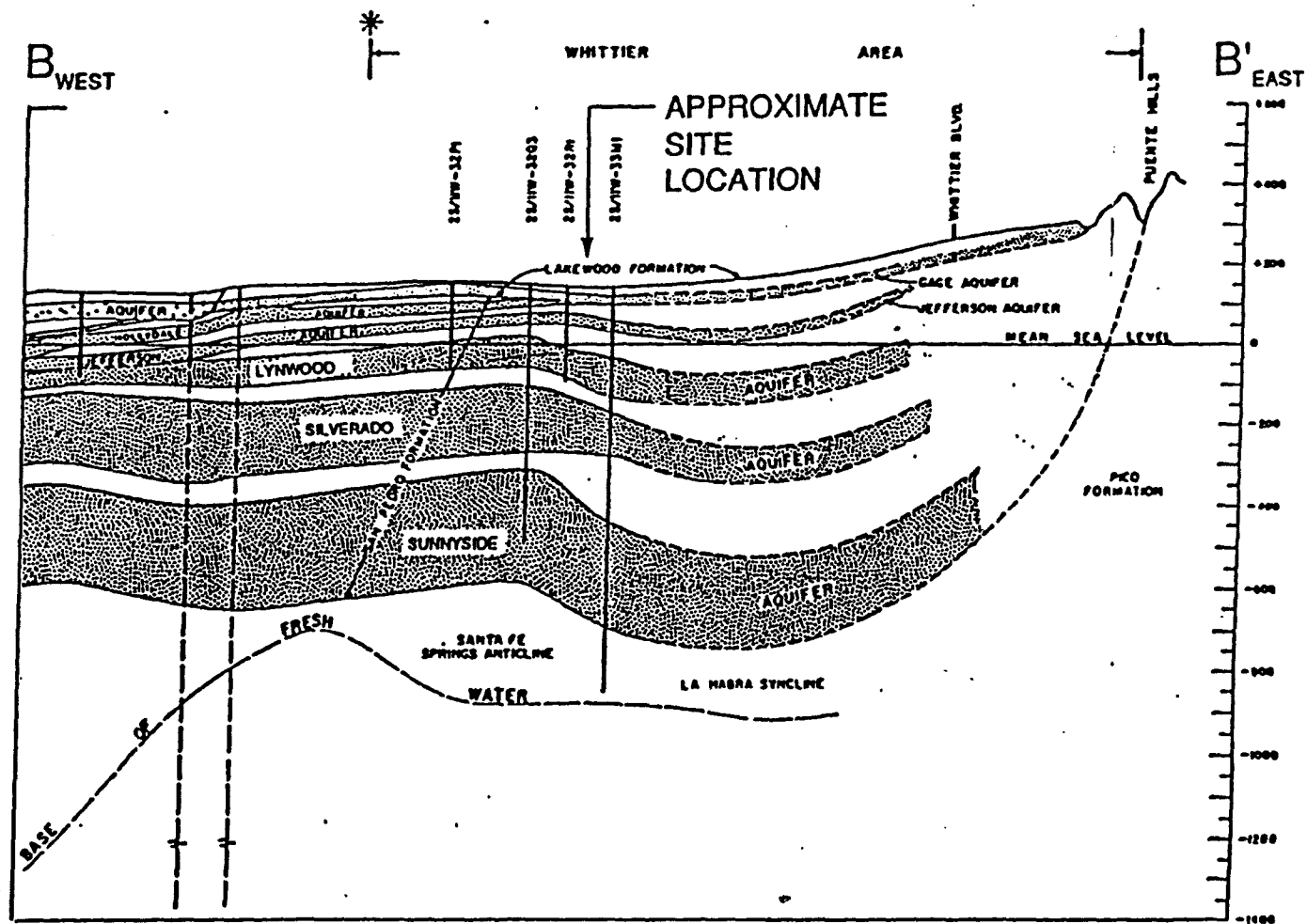


Figure 2.6 Regional Aquifer Cross Section

SOURCE: Adapted from DWR (1961).

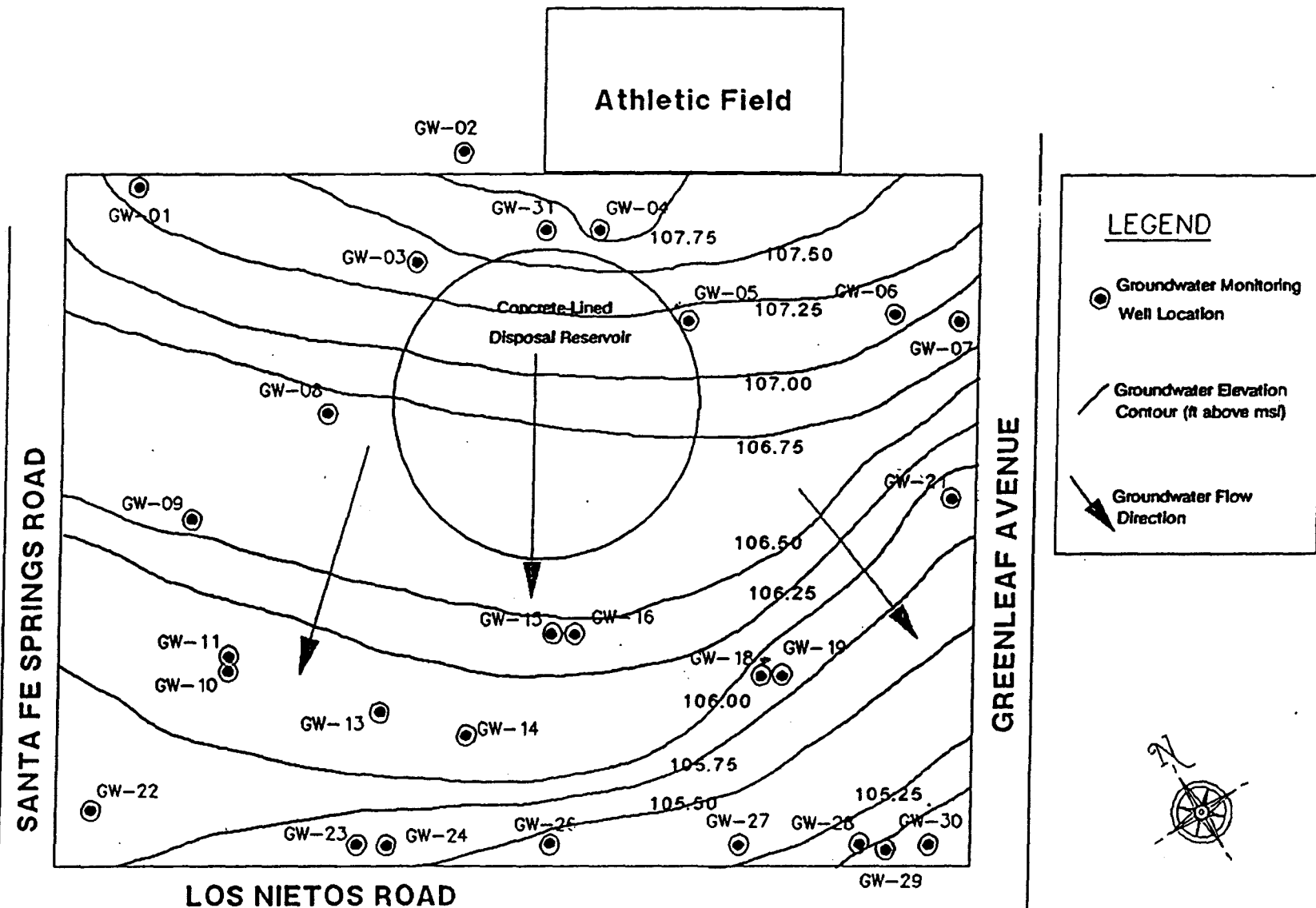


Figure 2.7 Groundwater Level Contour Map, December 1991

WASTE DISPOSAL, INCORPORATED
1992 FIELD MEASUREMENTS

PARAMETER	pH			CONDUCTIVITY (umhos/cm)			TEMPERATURE (C)			TURBIDITY (NTU)		
WELL/DATE	2/92	5/92	8/92	2/92	5/92	8/92	2/92	5/92	8/92	2/92	5/92	8/92
GW-01	6.00	7.11	7.35	2140	2080	2480	22.00	22.00	22.30	NM	99.00	37.00
GW-02	7.16	6.91	7.25	1776	1970	2250	19.00	21.00	22.60	88.10	61.30	39.00
GW-04	6.42	6.65	6.97	1648	2020	1655	19.00	21.00	21.70	NM	187.50	>200
GW-07	6.80	6.43	7.27	1700	2480	2440	21.60	22.50	23.00	10.29	17.42	44.10
GW-10	7.68	6.50	6.90	1780	2100	1920	21.00	22.10	22.60	NM	>200	42.00
GW-11	6.12	6.89	7.18	1900	2400	2220	21.00	22.40	23.40	1.57	4.80	1.50
GW-23	6.93	7.10	7.16	NM	2110	2280	19.80	22.00	24.90	47.40	63.20	95.00
GW-24	6.95	7.05	7.31	NM	2060	2710	20.20	21.60	23.00	2.33	1.75	NM
GW-26	6.66	6.40	6.61	1730	1930	2270	20.30	22.50	23.00	NM	42.00	99.00
GW-28	6.60	6.94	6.58	2030	2300	2390	21.00	22.30	26.00	>200	>200	>200
GW-30	7.12	7.20	7.37	1503	1587	1750	19.90	21.50	22.80	7.70	4.40	4.76

NM = Not Measured

TABLE 4.1 FIELD MEASUREMENTS

WASTE DISPOSAL, INCORPORATED
WATER LEVEL ELEVATIONS
FEET ABOVE MEAN SEA LEVEL

LOCATION	SURFACE ELEVATION	OCT 88 TO								
		OCT 88*	DEC 91	CHANGE	FEB 92	DEC to FEB CHANGE	MAY 92	FEB to MAY CHANGE	AUG 92	MAY TO AUG CHANGE
GW-01	153.76	106.86	107.52	+0.66	108.26	+0.74	109.72	+1.46	110.58	+0.86
GW-02	149.61	107.41	107.85	+0.44	108.46	+0.61	109.87	+1.41	110.67	+0.80
GW-04	167.01	107.51	107.77	+0.26	108.29	+0.52	109.65	+1.36	110.51	+0.86
GW-07	154.78	106.68	106.80	+0.12	107.40	+0.60	108.71	+1.31	109.45	+0.74
GW-10	154.98	105.68	106.40	+0.72	107.04	+0.64	108.38	+1.34	109.15	+0.77
GW-11	154.91	105.01	105.95	+0.94	106.71	+0.76	107.93	+1.22	108.70	+0.77
GW-23	157.23	97.83	98.65	+0.82	98.99	+0.34	99.59	+0.60	100.05	+0.46
GW-24	157.03	92.63	92.70	+0.07	93.31	+0.61	94.51	+1.20	95.57	+1.06
GW-26	156.29	104.89	105.69	+0.80	106.20	+0.51	107.41	+1.21	108.23	+0.82
GW-28	157.56	103.76	105.26	+1.50	105.75	+0.49	107.02	+1.27	107.76	+0.74
GW-30	157.01	101.61	104.47	+2.86	105.11	+0.64	106.29	+1.18	107.01	+0.72
AVERAGE (FEET)				+0.84		+0.59		+1.23		+0.78

* Oct 88 water level measurement from final Remedial Investigation
Report (EBASCO Services Inc), Nov. 1989

TABLE 5.1 WATER LEVEL ELEVATIONS

WASTE DISPOSAL, INCORPORATED

WATER LEVEL ELEVATIONS

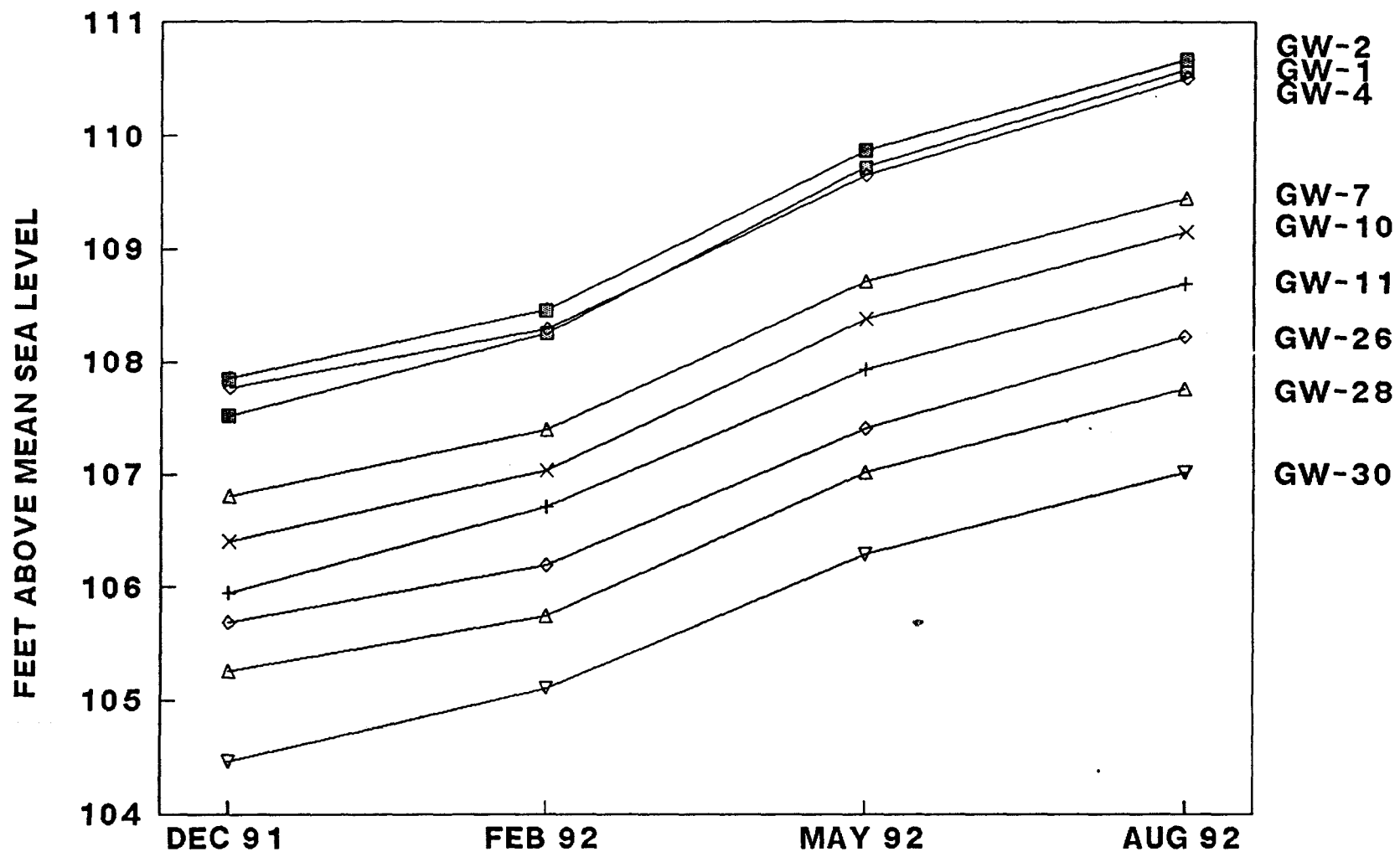


Figure 5.1 Water Level Elevations

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	ALUMINUM					ANTIMONY					ARSENIC				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	46700	1620	9590	19303	NR	ND	ND	14.8	14.8	NR	12.7	ND	4.7	8.7	50
GW-02	5630	2950	1690	3423	NR	ND	ND	ND	ND	NR	2.3	ND	ND	2.3	50
GW-04	5750	7180	22000	11643	NR	ND	ND	ND	ND	NR	2	ND	5.8	3.9	50
GW-07	923	1590	1960	1491	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-10	30500	9490	3700	14563	NR	ND	ND	ND	ND	NR	15.6	9.5	ND	12.6	50
GW-23	9390	2490	3340	5073	NR	ND	ND	ND	ND	NR	2.2	ND	ND	2.2	50
GW-26	21700	2170	7280	10383	NR	ND	ND	ND	ND	NR	9.9	ND	2.6	6.3	50
GW-28	33500	13200	31300	26000	NR	ND	ND	14.6	14.6	NR	11.8	6.5	6.9	8.4	50
GW-11	476	ND	ND	476	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-24	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-30	272	111	53	145	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50

WDI DISSOLVED METALS
ppb (parts per billion)

LOCATION	ALUMINUM					ANTIMONY					ARSENIC				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	ND	ND	ND	ND	NR	ND	ND	12.2	12.2	NR	ND	ND	ND	ND	50
GW-02	ND	ND	ND	ND	NR	29.3	ND	ND	29.3	NR	ND	ND	ND	ND	50
GW-04	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-07	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-10	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-23	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-26	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-28	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-11	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	2.2	2.2	50
GW-24	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	50
GW-30	ND	ND	ND	ND	NR	29.5	ND	ND	29.5	NR	ND	ND	ND	ND	50

Table 5.2

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	BARIUM					BERYLLIUM					CADMIUM				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	707.0	64.7	149.0	306.9	1000	3.3	ND	1.6	2.5	NR	14.2	ND	ND	14.2	5
GW-02	147.0	110.0	40.7	99.2	1000	1.3	ND	1.2	1.3	NR	ND	ND	ND	ND	5
GW-04	114.0	159.0	286.0	186.3	1000	1.3	1.3	1.8	1.5	NR	5.4	ND	ND	5.4	5
GW-07	68.4	87.0	58.2	71.2	1000	1.1	ND	1.1	1.1	NR	ND	ND	ND	ND	5
GW-10	724.0	382.0	108.0	404.7	1000	2.3	1.4	1.2	1.6	NR	8.2	ND	ND	8.2	5
GW-23	269.0	89.5	67.4	142.0	1000	1.6	ND	1.2	1.4	NR	6.0	ND	ND	6.0	5
GW-26	585.0	108.0	199.0	297.3	1000	2.1	1.1	1.3	1.5	NR	7.0	ND	ND	7.0	5
GW-28	315.0	201.0	308.0	274.7	1000	2.8	1.2	2.3	2.1	NR	9.6	ND	ND	9.6	5
GW-11	88.8	26.2	ND	57.5	1000	1.3	ND	1.3	1.3	NR	ND	ND	ND	ND	5
GW-24	49.2	23.8	ND	36.5	1000	1.5	ND	1.3	1.4	NR	ND	ND	ND	ND	5
GW-30	65.2	40.5	33.1	46.3	1000	1.1	ND	0.9	1.0	NR	ND	ND	ND	ND	5

WDI DISSOLVED METALS
ppb (parts per billion)

LOCATION	BARIUM					BERYLLIUM					CADMIUM				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	53.6	21.5	ND	37.6	1000	1.3	ND	1.0	1.2	NR	ND	ND	ND	ND	5
GW-02	51.0	28.0	ND	39.5	1000	1.1	ND	0.4	0.8	NR	ND	ND	ND	ND	5
GW-04	46.4	21.7	ND	34.1	1000	0.9	ND	0.7	0.8	NR	ND	ND	ND	ND	5
GW-07	46.6	18.1	ND	32.4	1000	1.1	ND	0.8	1.0	NR	ND	ND	ND	ND	5
GW-10	47.6	24.7	ND	36.2	1000	1.0	1.0	0.8	0.9	NR	ND	ND	ND	ND	5
GW-23	49.4	25.1	ND	37.3	1000	1.2	ND	0.8	1.0	NR	ND	ND	ND	ND	5
GW-26	55.5	26.0	ND	40.8	1000	1.1	ND	0.8	1.0	NR	ND	ND	ND	ND	5
GW-28	57.2	30.6	10.2	32.7	1000	1.3	ND	1.0	1.2	NR	ND	ND	ND	ND	5
GW-11	54.1	22.5	ND	38.3	1000	1.1	1.1	0.9	1.0	NR	ND	ND	ND	ND	5
GW-24	49.8	24.3	ND	37.1	1000	1.1	ND	0.9	1.0	NR	ND	ND	ND	ND	5
GW-30	60.1	40.0	20.2	40.1	1000	0.9	ND	0.5	0.7	NR	ND	ND	ND	ND	5

Table 5.2

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	CALCIUM					CHROMIUM					COBALT				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	315000	278000	294000	295667	NR	81.6	9.3	19.9	36.9	50	50.7	ND	10.7	30.7	NR
GW-02	218000	208000	220000	215333	NR	13.8	10.8	7.9	10.8	50	ND	ND	ND	ND	NR
GW-04	204000	196000	197000	199000	NR	16.5	18.9	39.6	25.0	50	ND	ND	20.0	20.0	NR
GW-07	220000	226000	219000	221667	NR	ND	3.9	6.5	5.2	50	ND	ND	ND	ND	NR
GW-10	238000	225000	233000	232000	NR	41.6	18.1	5.3	21.7	50	36.3	18.0	6.9	20.4	NR
GW-23	250000	232000	231000	237667	NR	15.2	5.6	6.4	9.1	50	ND	ND	ND	ND	NR
GW-26	254000	243000	250000	249000	NR	33.4	6.6	11.5	17.2	50	33.7	ND	12.4	23.1	NR
GW-28	285000	253000	277000	271667	NR	55.1	21.6	49.1	41.9	50	29.8	12.7	29.2	23.9	NR
GW-11	257000	277000	273000	269000	NR	4.9	5.9	3.1	4.6	50	ND	ND	ND	ND	NR
GW-24	288000	205000	288000	260333	NR	5.5	3.1	3.9	4.2	50	ND	ND	ND	ND	NR
GW-30	182000	159000	156000	165667	NR	4.1	5.2	ND	4.7	50	ND	ND	ND	ND	NR

WDI DISSOLVED METALS
ppb (parts per billion)

LOCATION	CALCIUM					CHROMIUM					COBALT				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	313000	287000	279000	293000	NR	ND	7.4	4.6	6.0	50	ND	ND	ND	ND	NR
GW-02	234000	208000	204000	215333	NR	8.5	7.1	6.6	7.4	50	ND	ND	ND	ND	NR
GW-04	207000	194000	183000	194667	NR	6.1	9.2	5.1	6.8	50	ND	ND	ND	ND	NR
GW-07	238000	204000	210000	217333	NR	ND	3.3	ND	3.3	50	ND	ND	ND	ND	NR
GW-10	227000	226000	221000	224667	NR	ND	ND	ND	ND	50	ND	ND	ND	ND	NR
GW-23	273000	239000	232000	248000	NR	ND	ND	ND	ND	50	ND	ND	ND	ND	NR
GW-26	257000	242000	239000	246000	NR	ND	ND	2.1	2.1	50	ND	ND	ND	ND	NR
GW-28	287000	245000	260000	264000	NR	ND	3.7	ND	3.7	50	ND	ND	ND	ND	NR
GW-11	274000	268000	277000	273000	NR	ND	5.9	2.3	4.1	50	ND	ND	ND	ND	NR
GW-24	264000	221000	281000	255333	NR	ND	3.8	4.2	4.0	50	ND	ND	ND	ND	NR
GW-30	188000	162000	153000	167667	NR	ND	3.8	2.5	3.2	50	ND	ND	ND	ND	NR

Table 5.2

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	COPPER					IRON					LEAD				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	87.1	14.5	20.5	40.7	1000	70700	2070	15000	29257	300	26.8	2.2	2.4	10.5	20
GW-02	7.7	41.5	5.5	18.2	1000	7990	4450	2900	5113	300	2.4	3.4	1.8	2.5	20
GW-04	11.3	23.8	42.7	25.9	1000	8120	8280	35000	17133	300	3.7	7.2	17.7	9.5	20
GW-07	ND	13.3	6.3	9.8	1000	1320	2520	3160	2333	300	ND	1.3	ND	1.3	20
GW-10	85.8	28.8	9.5	41.4	1000	45400	13700	5970	21690	300	17.4	8.7	2.1	9.4	20
GW-23	20.0	16.2	9.5	15.2	1000	11800	3270	4900	6657	300	2.1	1.7	ND	1.9	20
GW-26	58.1	14.1	19.0	30.4	1000	32800	3570	11900	16090	300	17.8	2.8	3.9	8.2	20
GW-28	71.2	60.8	64.4	65.5	1000	46600	17200	46600	36800	300	13.7	11.1	6.6	10.5	20
GW-11	7.3	8.5	3.6	6.5	1000	1110	204	145	486	300	5.1	ND	ND	5.1	20
GW-24	ND	5.4	2.4	3.9	1000	78	106	69	84	300	ND	1.3	ND	1.3	20
GW-30	ND	4.5	2.8	3.7	1000	695	201	208	368	300	1.0	3.6	2.2	2.3	20

WDI DISSOLVED METALS
ppb (parts per billion)

LOCATION	COPPER					IRON					LEAD				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	ND	6.9	ND	6.9	1000	ND	104	ND	104	300	1.0	ND	ND	1.0	20
GW-02	ND	6.5	ND	6.5	1000	ND	68	ND	68	300	ND	1.4	ND	1.4	20
GW-04	ND	6.4	ND	6.4	1000	ND	79	ND	79	300	ND	2.2	ND	2.2	20
GW-07	ND	4.3	ND	4.3	1000	ND	55	ND	55	300	1.3	1.4	ND	1.4	20
GW-10	ND	6.3	ND	6.3	1000	ND	66	ND	66	300	6.0	ND	ND	6.0	20
GW-23	ND	5.3	ND	5.3	1000	ND	64	ND	64	300	ND	1.2	ND	1.2	20
GW-26	ND	5.5	ND	5.5	1000	ND	69	ND	69	300	1.2	ND	ND	1.2	20
GW-28	ND	6.6	ND	6.6	1000	ND	74	ND	74	300	ND	1.5	ND	1.5	20
GW-11	ND	7.4	ND	7.4	1000	ND	73	ND	73	300	ND	ND	ND	ND	20
GW-24	ND	5.6	ND	5.6	1000	ND	63	ND	63	300	1.3	1.1	ND	1.2	20
GW-30	ND	ND	ND	ND	1000	ND	43	ND	43	300	ND	1.5	ND	1.5	20

L METALS
per billion)

MAGNESIUM					MANGANESE					MERCURY				
2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
112000	85100	94000	97033	NR	2090.0	198.0	430.0	906.0	50.0	0.20	ND	ND	0.20	2.00
67500	62700	65000	65067	NR	227.0	241.0	90.0	186.0	50.0	ND	ND	ND	ND	2.00
64700	61600	68100	64800	NR	177.0	348.0	687.0	404.0	50.0	ND	0.57	0.30	0.44	2.00
70500	71700	69200	70467	NR	144.0	308.0	256.0	236.0	50.0	ND	ND	ND	ND	2.00
78100	68400	68400	71633	NR	4190.0	3540.0	2430.0	3386.7	50.0	0.30	ND	ND	0.30	2.00
75700	69600	67300	70867	NR	21000.0	876.0	693.0	7523.0	50.0	0.40	ND	0.40	0.40	2.00
80900	71400	75200	75833	NR	2640.0	546.0	1010.0	1398.7	50.0	2.00	0.55	0.60	1.05	2.00
97600	82700	93000	91100	NR	1010.0	733.0	1050.0	931.0	50.0	0.20	ND	ND	0.20	2.00
69900	79500	81500	76967	NR	140.0	87.8	55.4	94.4	50.0	0.20	ND	ND	0.20	2.00
81300	59900	80900	74033	NR	3.4	8.3	9.4	7.0	50.0	0.20	ND	ND	0.20	2.00
50000	42900	42700	45200	NR	94.4	34.9	19.7	49.7	50.0	ND	ND	ND	ND	2.00

G	MCL
1.2	10.0
1.3	10.0
1.6	10.0
1.2	10.0
1.3	10.0
1.2	10.0
1.1	10.0
1.7	10.0
1.5	10.0
1.0	10.0
1.8	10.0

OLVED METALS
per billion)

MAGNESIUM					MANGANESE					MERCURY				
2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
93900	86700	85500	88700	NR	ND	8.0	ND	8.0	50.0	ND	ND	ND	ND	2.00
69200	61900	58600	63233	NR	ND	7.2	0.9	4.1	50.0	ND	ND	ND	ND	2.00
62800	58900	56400	59367	NR	ND	11.3	ND	11.3	50.0	0.20	ND	ND	0.20	2.00
73500	64300	65400	67733	NR	9.3	33.7	26.4	23.1	50.0	ND	ND	ND	ND	2.00
64600	64900	64100	64533	NR	2130.0	2010.0	1950.0	2030.0	50.0	ND	ND	ND	ND	2.00
77800	70800	67300	71967	NR	36.7	130.0	290.0	152.2	50.0	ND	ND	0.30	0.30	2.00
75800	70200	69500	71833	NR	12.9	19.4	10.9	14.4	50.0	0.30	0.22	1.10	0.54	2.00
86200	74300	76500	79000	NR	2.6	14.8	ND	8.7	50.0	0.20	ND	0.40	0.30	2.00
73400	77100	78200	76233	NR	6.8	9.6	2.3	6.2	50.0	ND	ND	ND	ND	2.00
75300	63900	80900	73367	NR	ND	7.4	ND	7.4	50.0	ND	ND	0.30	0.30	2.00
50000	43500	43000	45500	NR	ND	7.8	0.9	4.4	50.0	0.20	ND	ND	0.20	2.00

G	MCL
1.1	10.0
1.9	10.0
1.3	10.0
1.8	10.0
1.9	10.0
1.5	10.0
1.4	10.0
1.4	10.0
1.4	10.0
1.1	10.0
1.8	10.0

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	SILVER					SODIUM					THALLIUM				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	ND	ND	ND	ND	50.0	163000	143000	155000	153667	NR	ND	ND	ND	ND	NR
GW-02	ND	ND	ND	ND	50.0	115000	108000	119000	114000	NR	ND	ND	ND	ND	NR
GW-04	ND	ND	ND	ND	50.0	128000	118000	125000	123667	NR	ND	ND	ND	ND	NR
GW-07	ND	ND	ND	ND	50.0	173000	163000	170000	168667	NR	ND	ND	ND	ND	NR
GW-10	ND	ND	ND	ND	50.0	147000	133000	134000	138000	NR	ND	ND	ND	ND	NR
GW-23	ND	ND	ND	ND	50.0	137000	132000	128000	132333	NR	ND	ND	ND	ND	NR
GW-26	ND	ND	ND	ND	50.0	151000	142000	150000	147667	NR	ND	ND	ND	ND	NR
GW-28	ND	ND	ND	ND	50.0	151000	141000	143000	145000	NR	ND	ND	ND	ND	NR
GW-11	ND	ND	ND	ND	50.0	152000	154000	151000	152333	NR	ND	ND	ND	ND	NR
GW-24	ND	ND	ND	ND	50.0	127000	118000	124000	123000	NR	ND	ND	ND	ND	NR
GW-30	ND	ND	ND	ND	50.0	92700	85400	78900	85667	NR	ND	ND	ND	ND	NR

WDI DISSOLVED METALS
ppb (parts per billion)

LOCATION	SILVER					SODIUM					THALLIUM				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	ND	ND	ND	ND	50.0	163000	146000	146000	151667	NR	ND	ND	ND	ND	NR
GW-02	ND	ND	ND	ND	50.0	120000	109000	113000	114000	NR	ND	ND	ND	ND	NR
GW-04	ND	ND	ND	ND	50.0	130000	120000	121000	123667	NR	ND	ND	ND	ND	NR
GW-07	ND	ND	ND	ND	50.0	176000	148000	159000	161000	NR	ND	ND	ND	ND	NR
GW-10	ND	ND	ND	ND	50.0	137000	132000	127000	132000	NR	ND	ND	ND	ND	NR
GW-23	ND	ND	ND	ND	50.0	136000	138000	131000	135000	NR	ND	ND	ND	ND	NR
GW-26	ND	ND	ND	ND	50.0	156000	142000	142000	146667	NR	ND	ND	ND	ND	NR
GW-28	ND	ND	ND	ND	50.0	155000	140000	138000	144333	NR	ND	ND	ND	ND	NR
GW-11	ND	ND	ND	ND	50.0	157000	150000	137000	148000	NR	ND	ND	ND	ND	NR
GW-24	ND	ND	ND	ND	50.0	134000	125000	124000	127667	NR	ND	ND	ND	ND	NR
GW-30	ND	ND	ND	ND	50.0	98500	86300	79900	88233	NR	ND	ND	ND	ND	NR

Table 5.2

WDI TOTAL METALS
ppb (parts per billion)

LOCATION	VANADIUM					ZINC				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	126.0	11.2	30.3	55.8	NR	206.0	19.7	40.9	88.9	5000
GW-02	16.8	12.4	7.6	12.3	NR	25.8	51.6	12.1	29.8	5000
GW-04	16.8	26.0	60.3	34.4	NR	34.4	65.8	111.0	70.4	5000
GW-07	ND	8.5	8.2	8.4	NR	25.8	20.4	12.1	19.4	5000
GW-10	84.4	39.7	12.3	45.5	NR	189.0	74.1	22.8	95.3	5000
GW-23	37.0	10.8	11.4	19.7	NR	51.6	30.3	16.0	32.6	5000
GW-26	60.3	10.7	22.6	31.2	NR	103.0	23.8	41.5	56.1	5000
GW-28	94.2	50.0	88.9	77.7	NR	155.0	101.0	133.0	129.7	5000
GW-11	ND	ND	4.7	4.7	NR	328.0	82.3	23.7	144.7	5000
GW-24	ND	ND	3.9	3.9	NR	ND	24.7	ND	24.7	5000
GW-30	ND	ND	3.9	3.9	NR	17.2	11.7	17.2	15.4	5000

WDI DISSOLVED METALS
ppb (parts per billion)

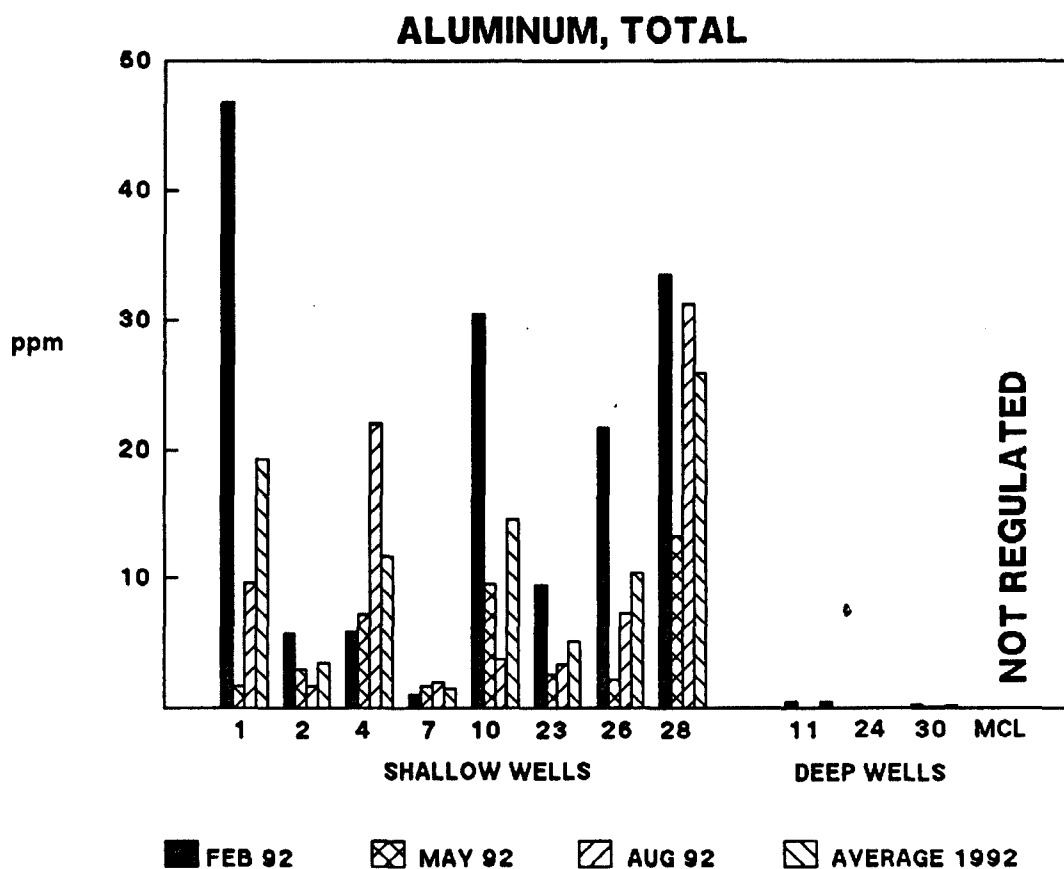
LOCATION	VANADIUM					ZINC				
	2/92	5/92	8/92	AVG	MCL	2/92	5/92	8/92	AVG	MCL
GW-01	ND	ND	4.2	4.2	NR	15.4	6.1	ND	10.8	5000
GW-02	ND	ND	3.9	3.9	NR	30.7	19.6	ND	25.2	5000
GW-04	ND	ND	2.2	2.2	NR	15.4	237.0	ND	126.2	5000
GW-07	ND	ND	3.6	3.6	NR	ND	7.4	ND	7.4	5000
GW-10	ND	ND	2.5	2.5	NR	15.4	8.6	17.2	13.7	5000
GW-23	ND	ND	3.2	3.2	NR	23.1	12.1	ND	17.6	5000
GW-26	ND	ND	3.1	3.1	NR	30.7	10.7	ND	20.7	5000
GW-28	ND	ND	2.8	2.8	NR	15.4	22.5	ND	19.0	5000
GW-11	ND	ND	4.5	4.5	NR	184.0	62.6	8.3	85.0	5000
GW-24	ND	ND	4.3	4.3	NR	15.4	19.5	ND	17.5	5000
GW-30	ND	ND	3.9	3.9	NR	ND	8.7	11.5	10.1	5000

Table 5.2

APPENIX A

GRAPHS - TOTAL AND DISSOLVED METALS

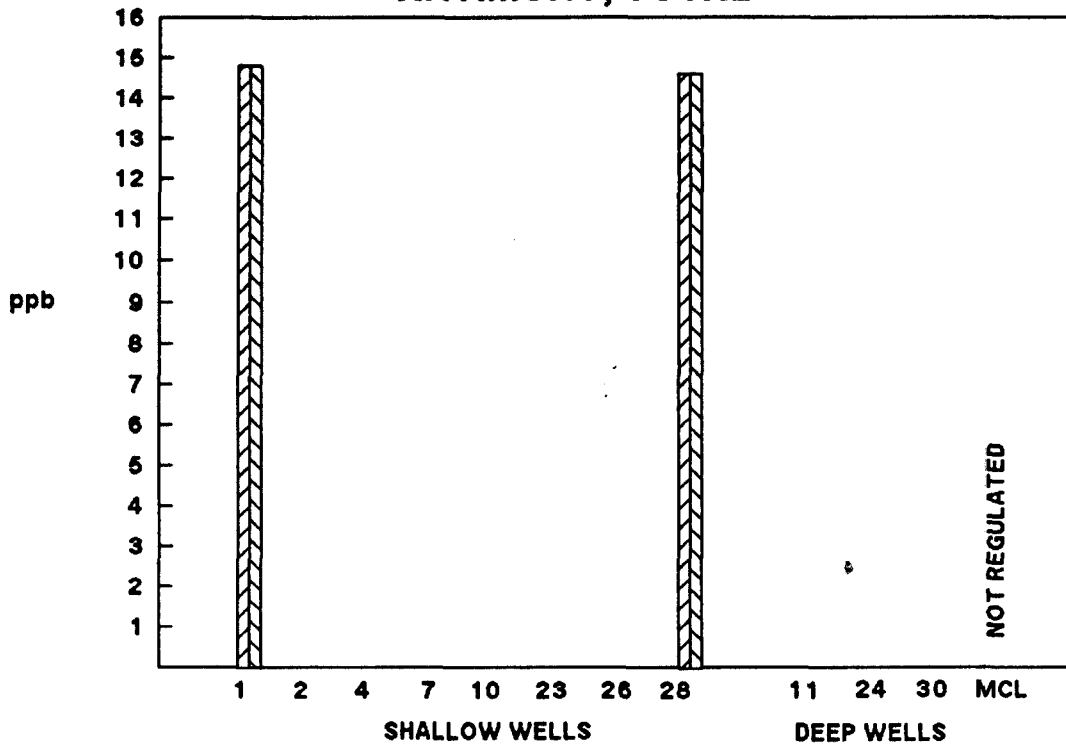
WASTE DISPOSAL, INCORPORATED



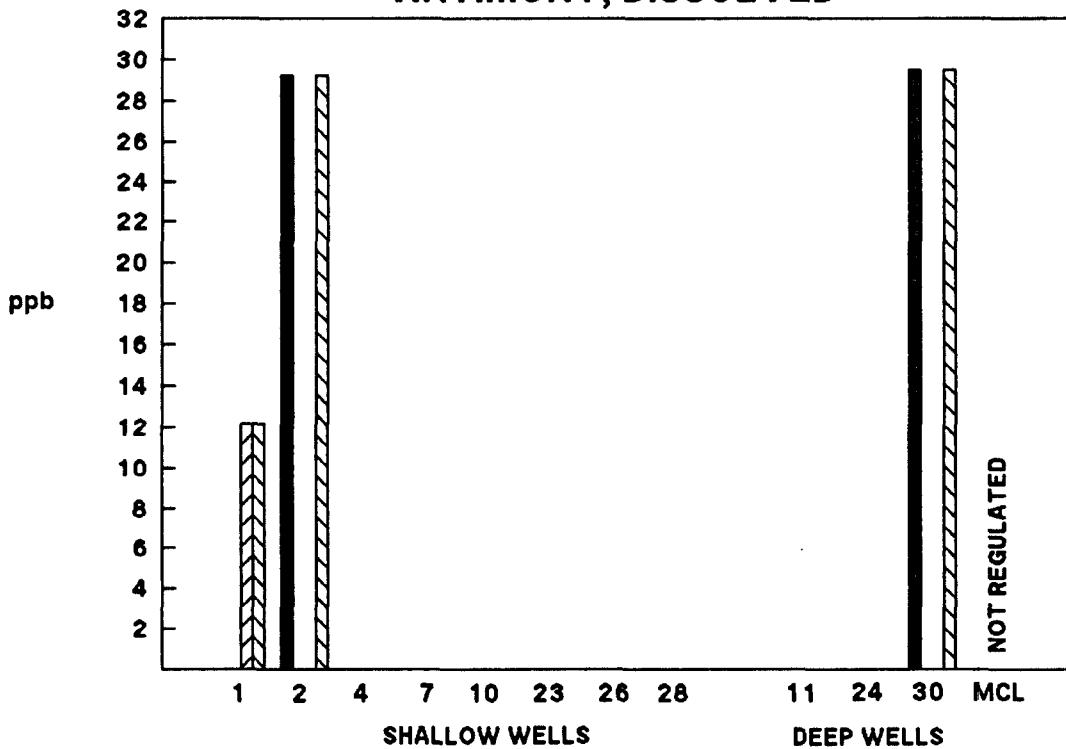
DISSOLVED ALUMINUM
NOT DETECTED

WASTE DISPOSAL, INCORPORATED

ANTIMONY, TOTAL



ANTIMONY, DISSOLVED



■ FEB 92

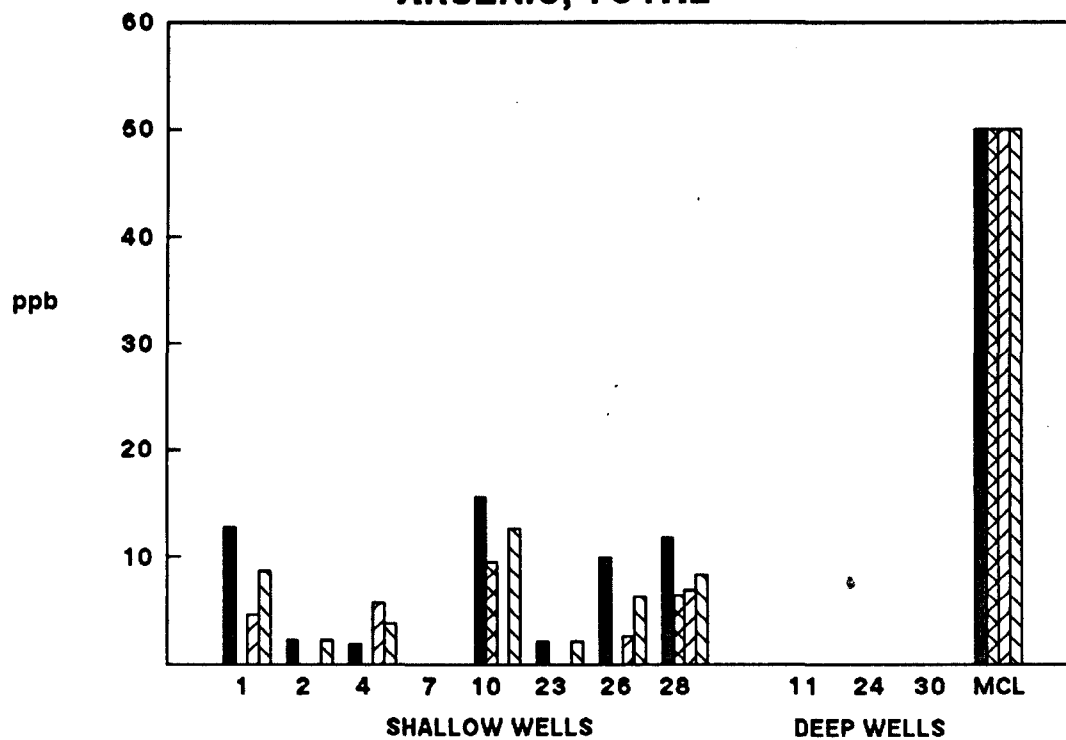
▨ MAY 92

▧ AUG 92

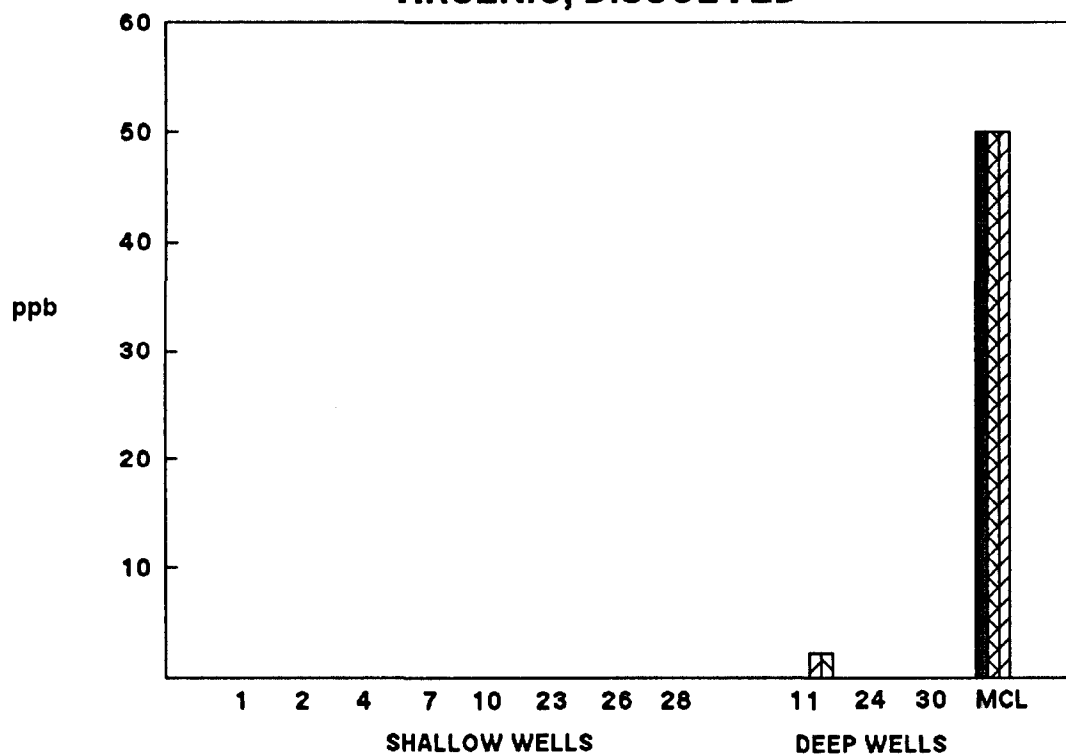
▩ AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

ARSENIC, TOTAL



ARSENIC, DISSOLVED



■ FEB 92

⊠ MAY 92

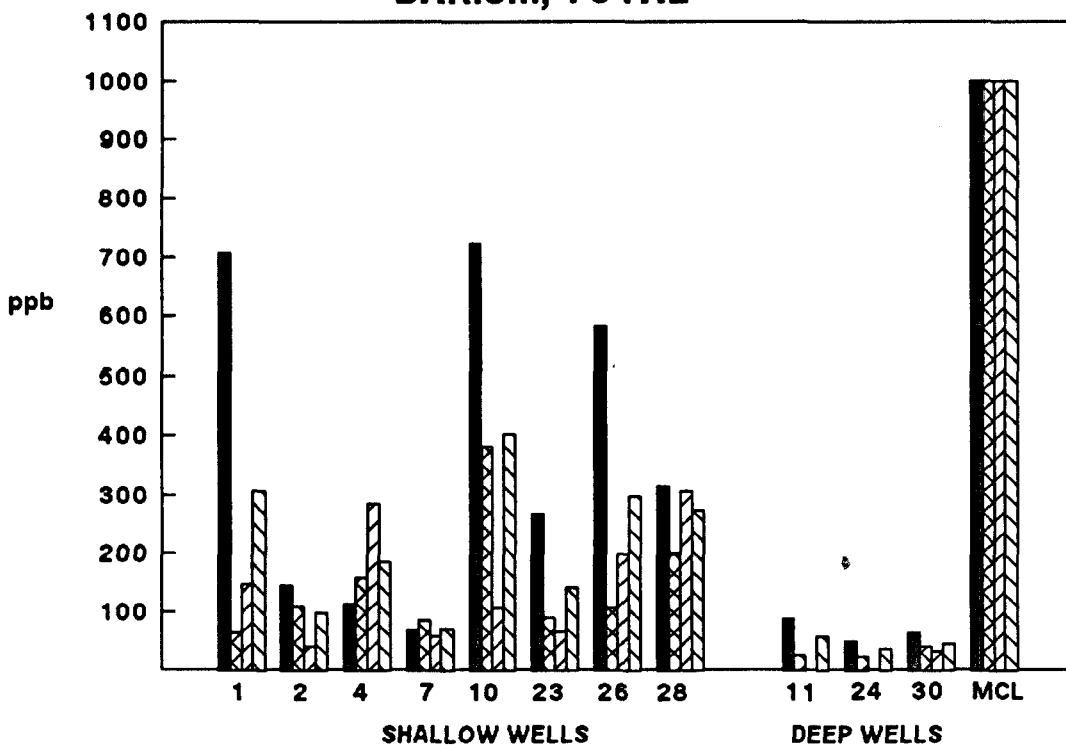
▨ AUG 92

▤ AVERAGE 1992

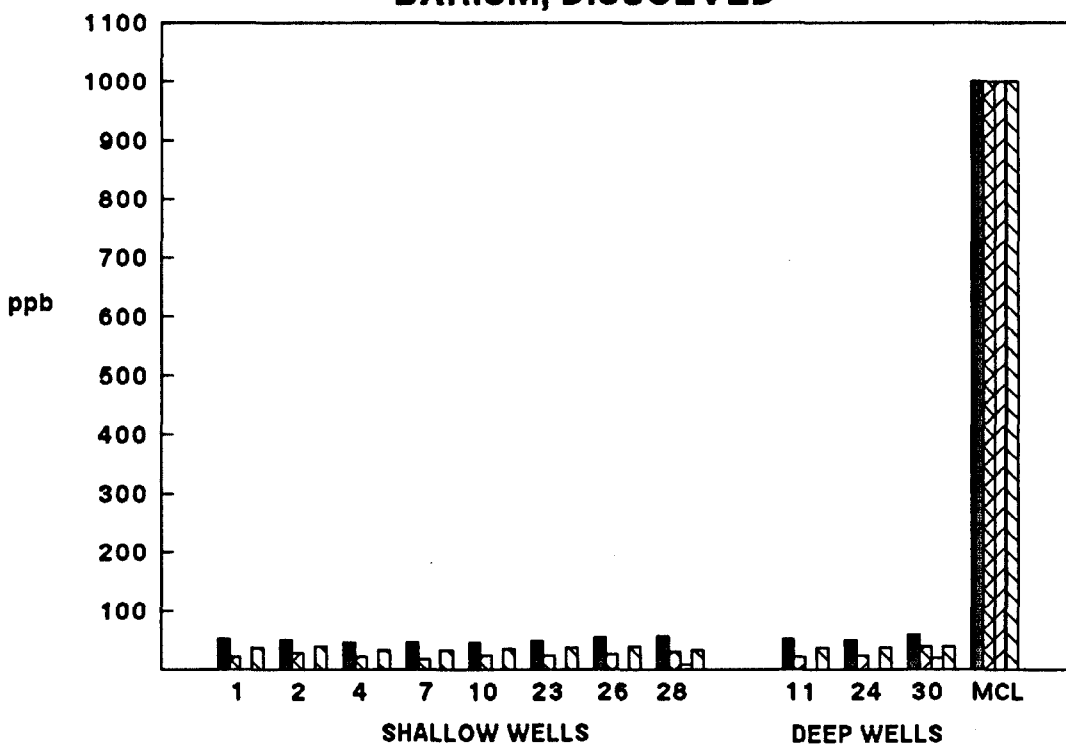
A-3

WASTE DISPOSAL, INCORPORATED

BARIUM, TOTAL



BARIUM, DISSOLVED



FEB 92

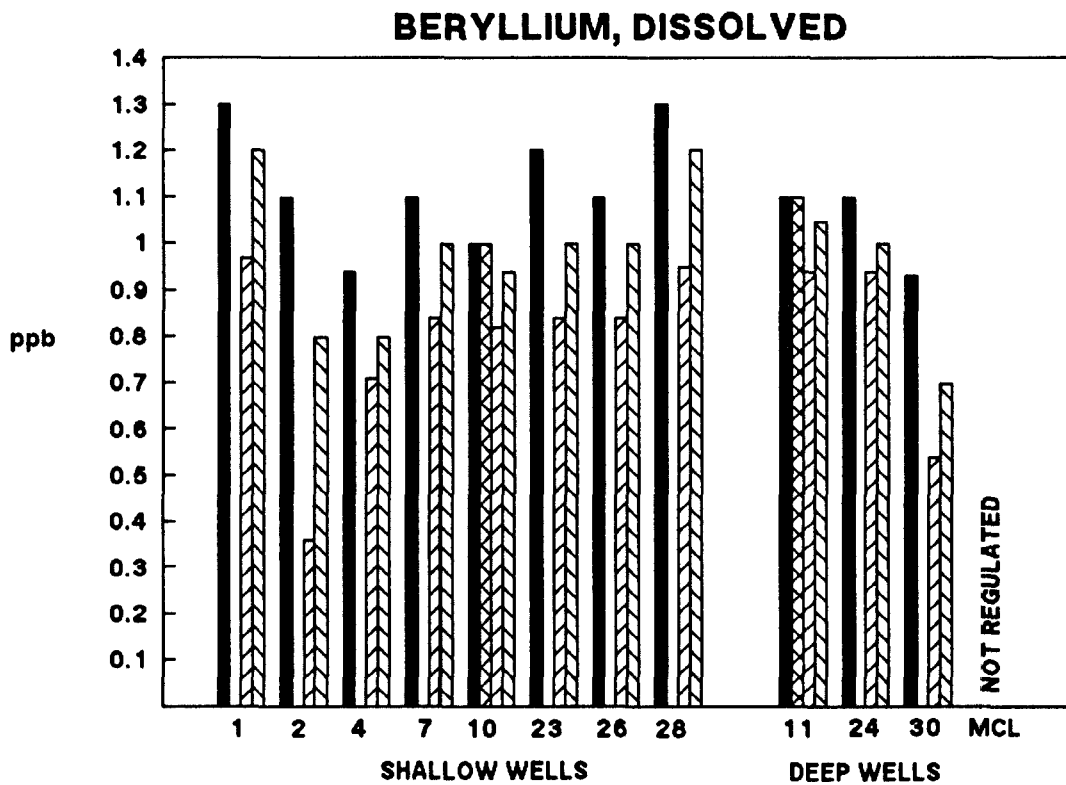
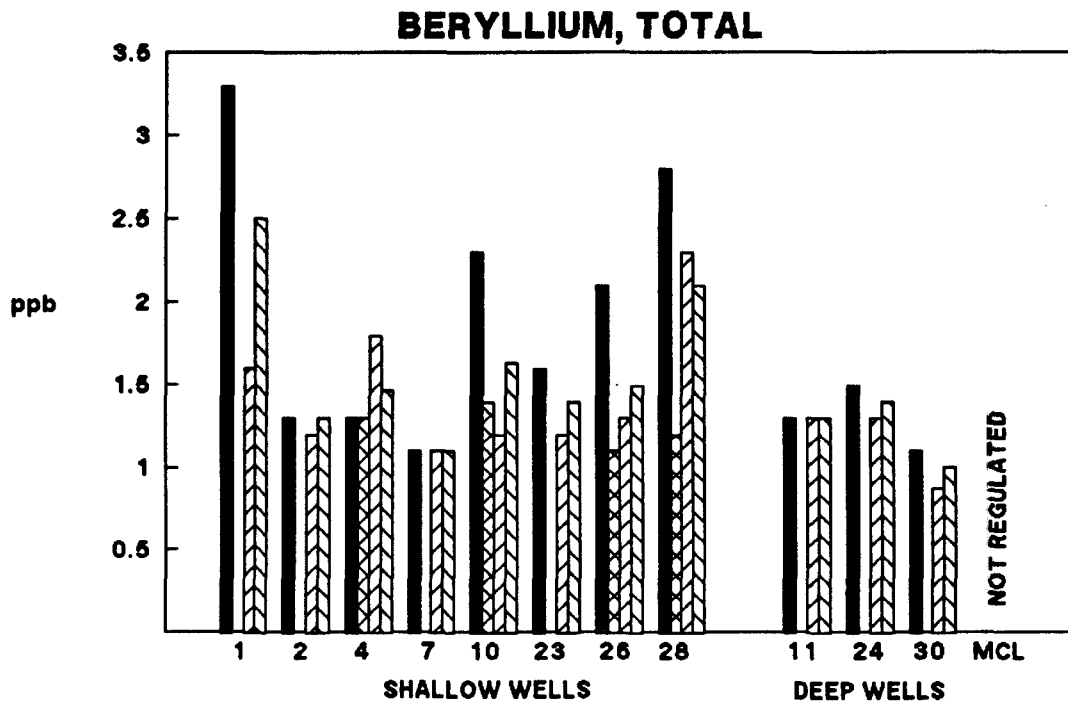
MAY 92

AUG 92

AVERAGE 1992

A-4

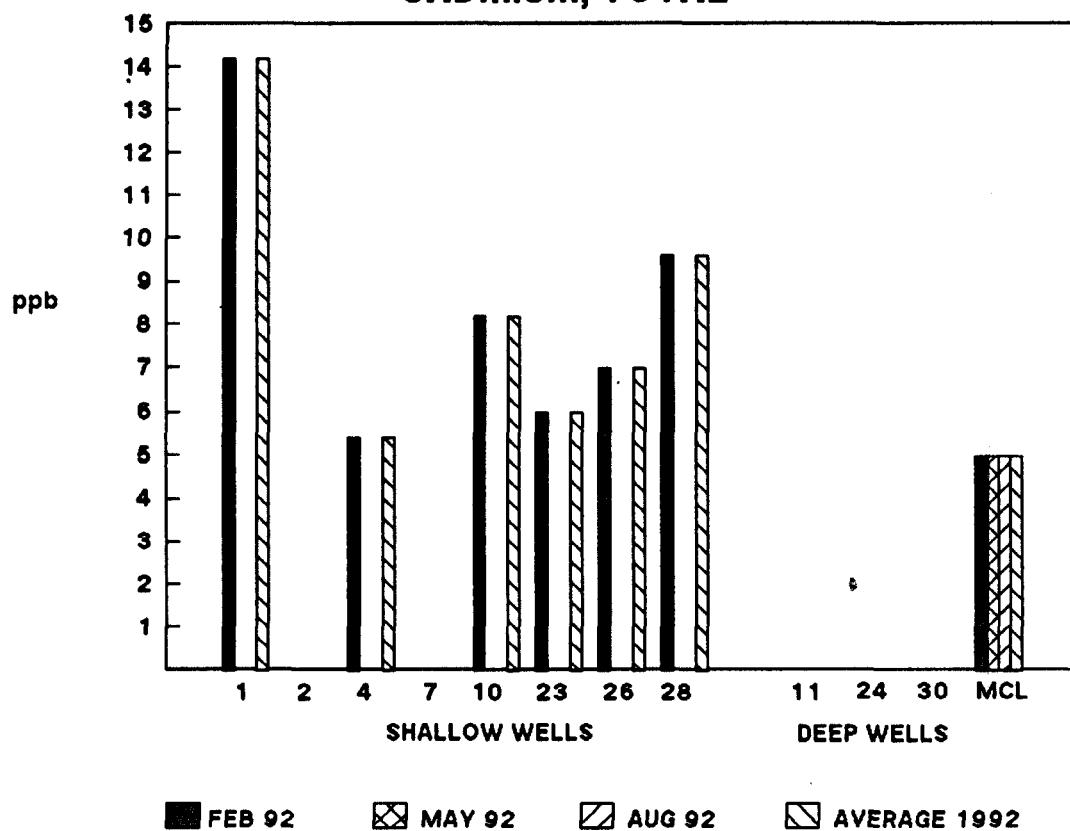
WASTE DISPOSAL, INCORPORATED



FEB 92
 MAY 92
 AUG 92
 AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

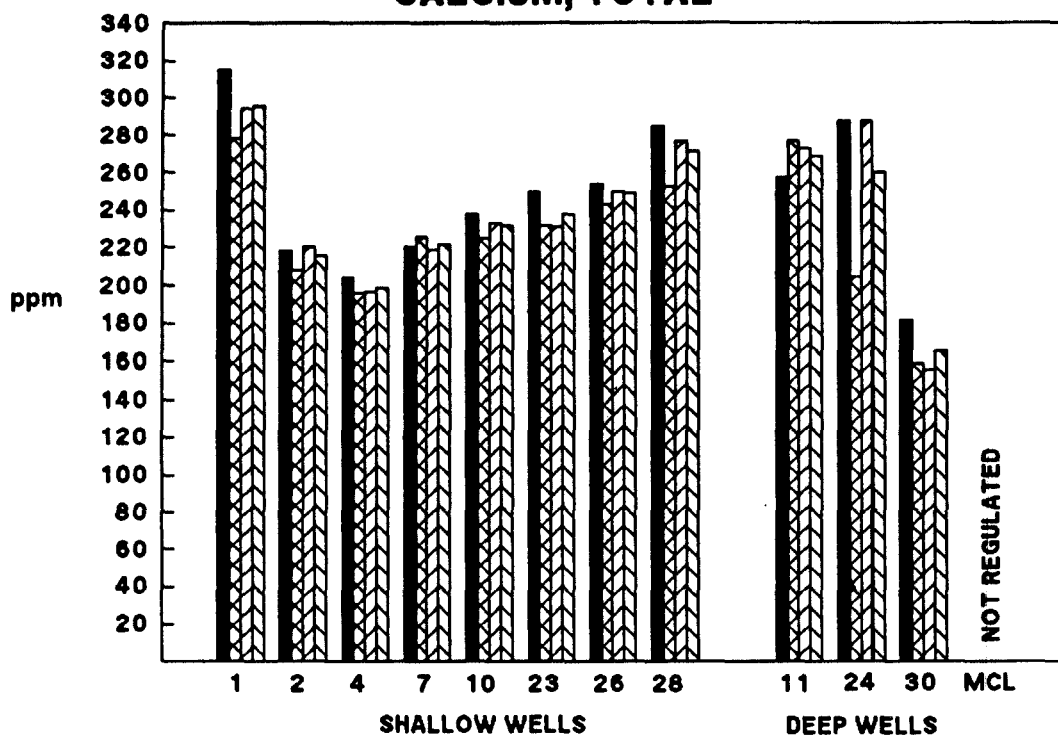
CADMIUM, TOTAL



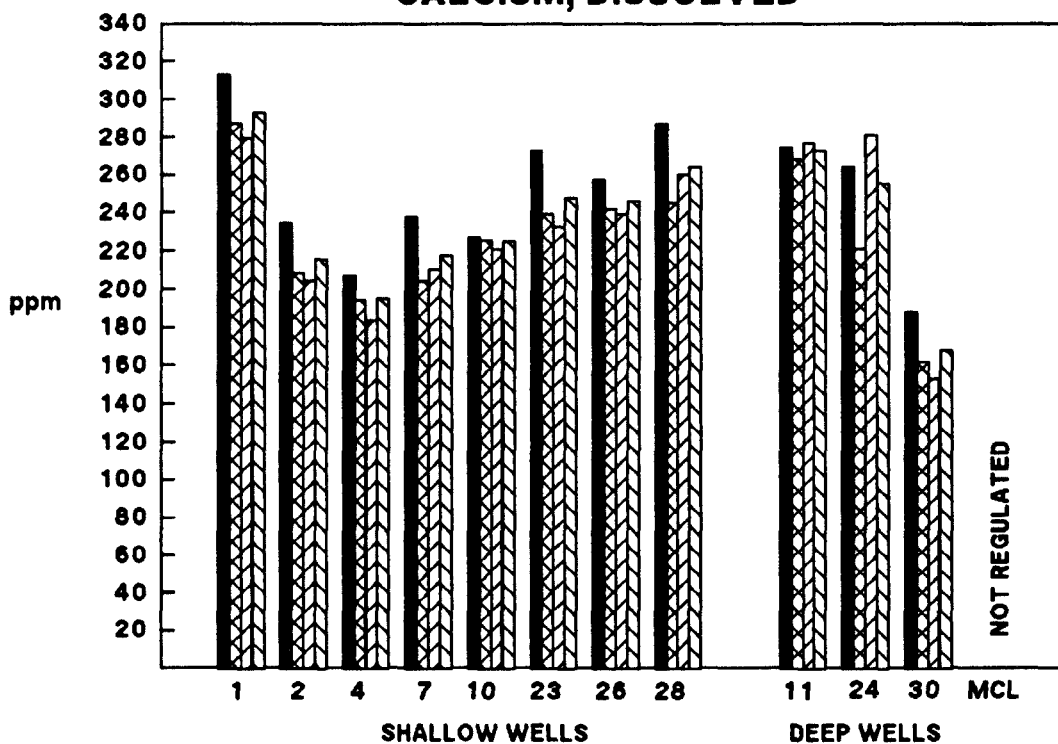
DISSOLVED CADMIUM
NOT DETECTED

WASTE DISPOSAL, INCORPORATED

CALCIUM, TOTAL



CALCIUM, DISSOLVED



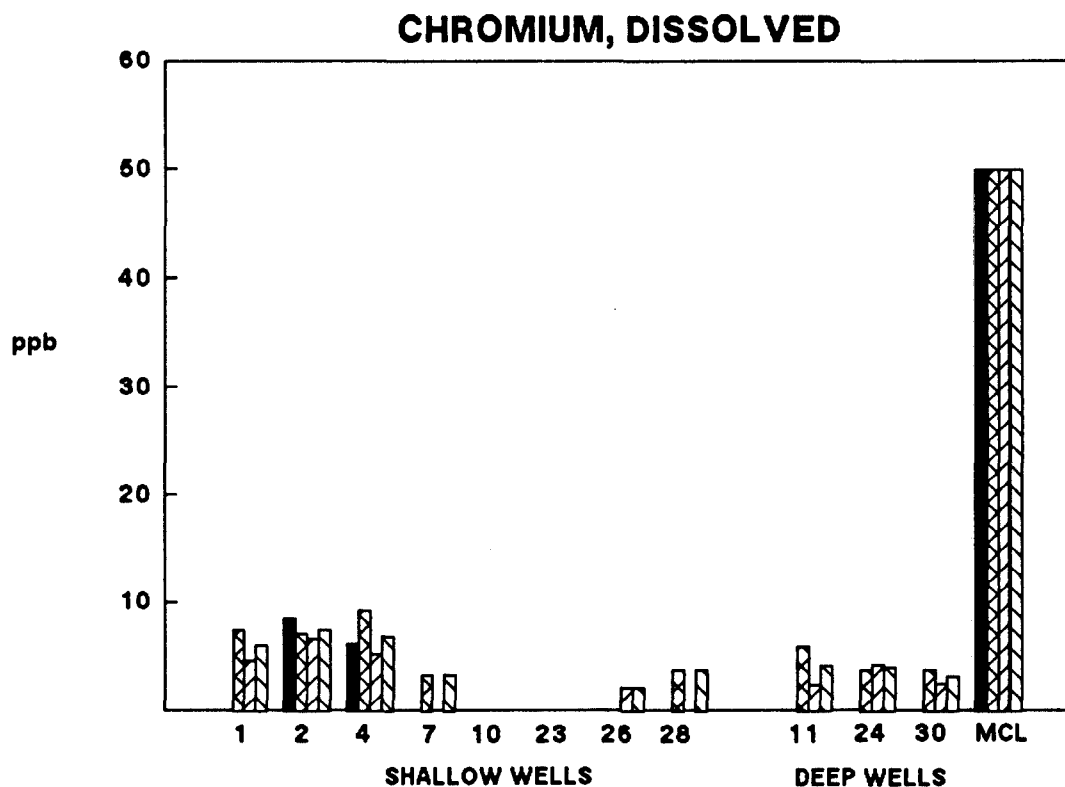
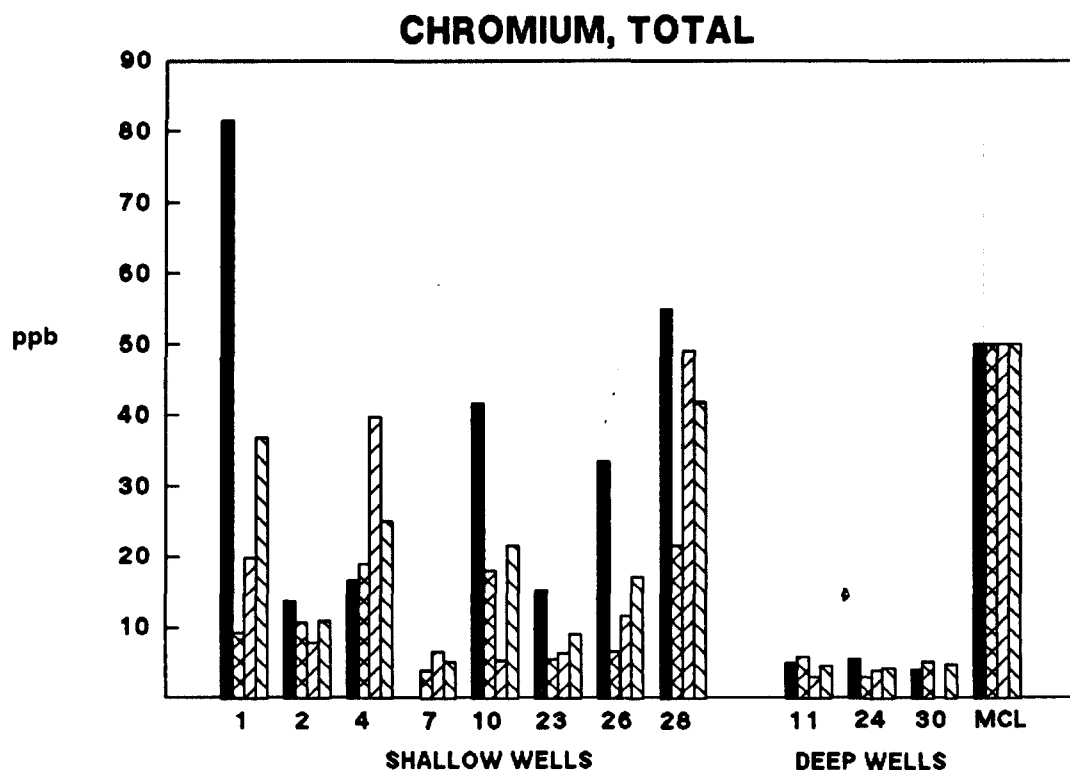
■ FEB 92

▣ MAY 92

▤ AUG 92

▥ AVERAGE 1992

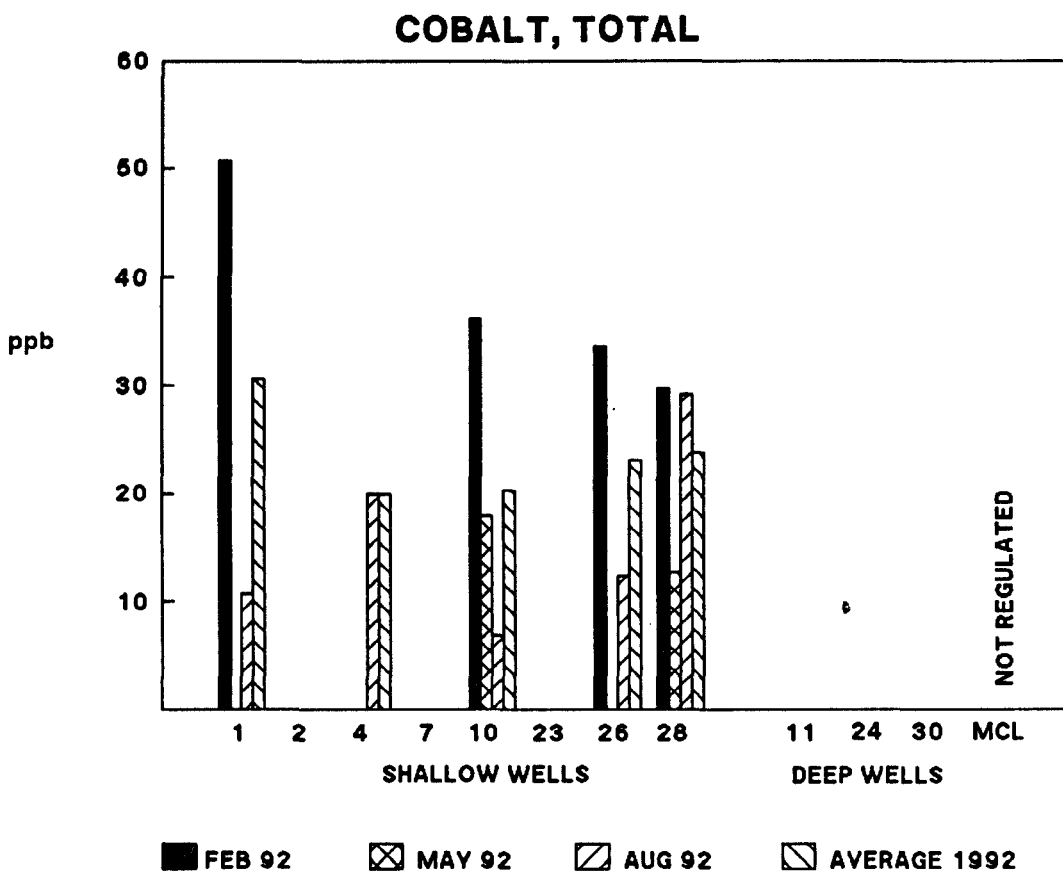
WASTE DISPOSAL, INCORPORATED



FEB 92
 MAY 92
 AUG 92
 AVERAGE 1992

A-8

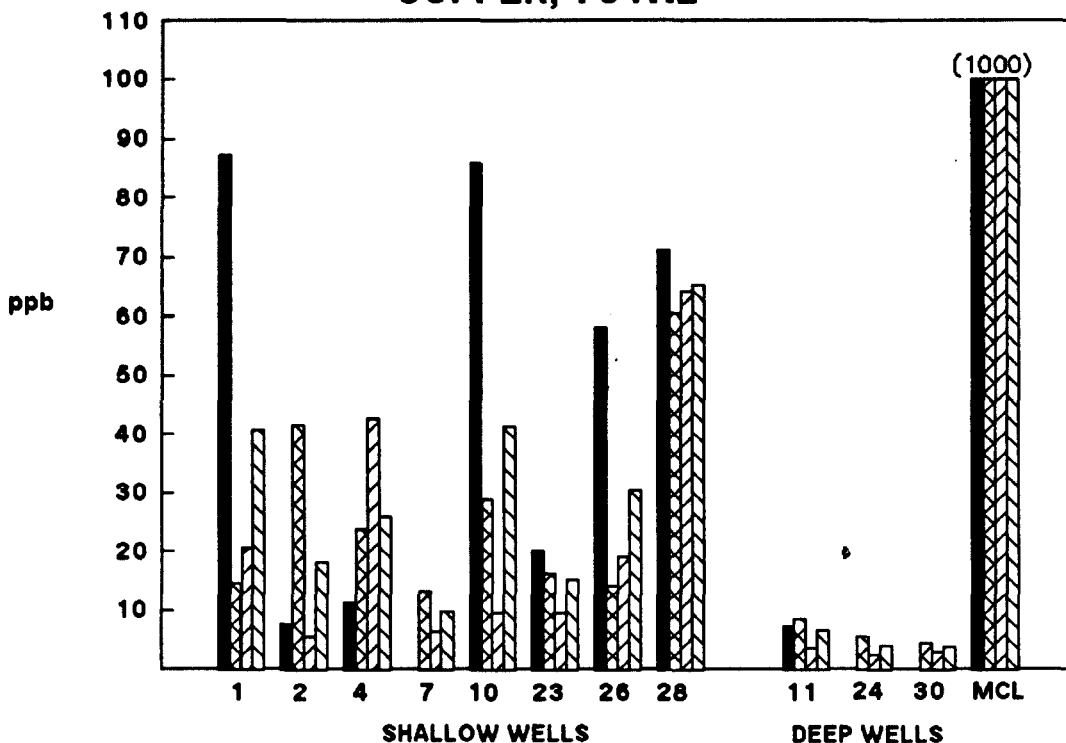
WASTE DISPOSAL, INCORPORATED



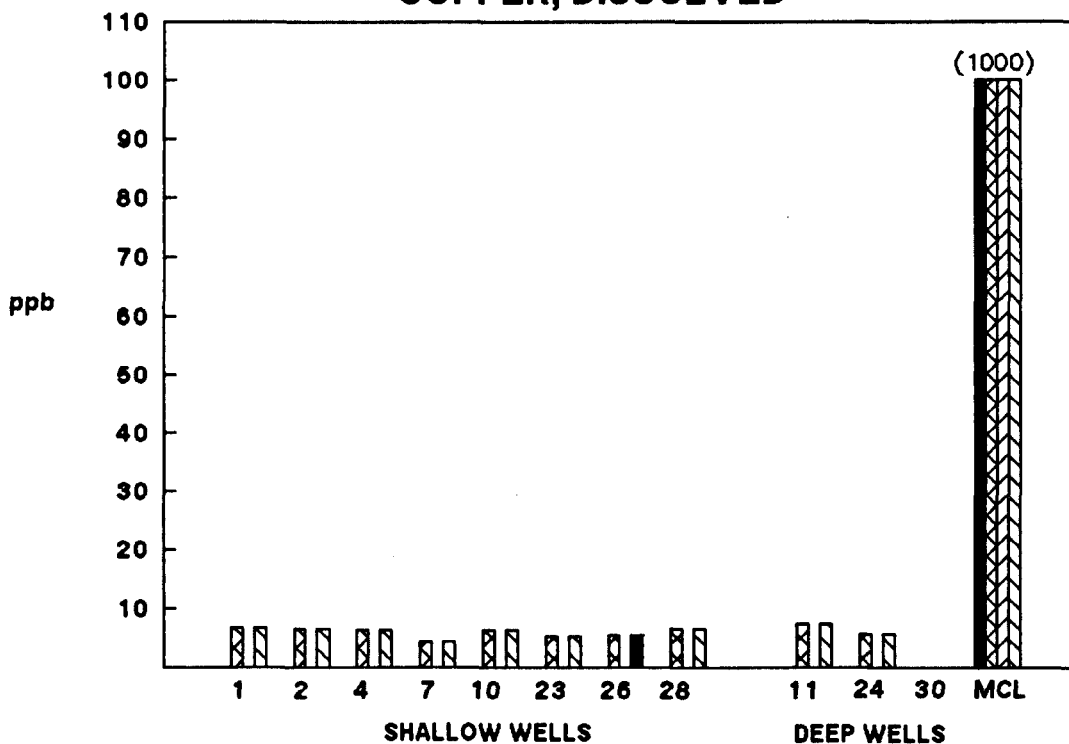
DISSOLVED COBALT
NOT DETECTED

WASTE DISPOSAL, INCORPORATED

COPPER, TOTAL



COPPER, DISSOLVED



■ FEB 92

▣ MAY 92

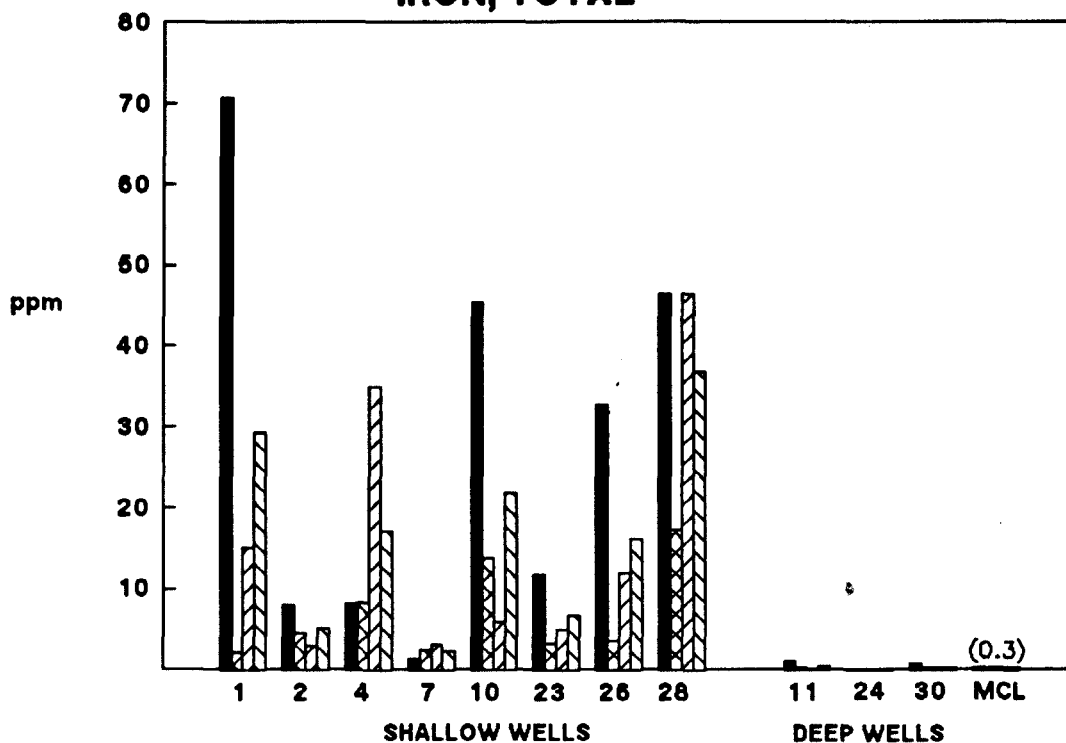
▤ AUG 92

▥ AVERAGE 1992

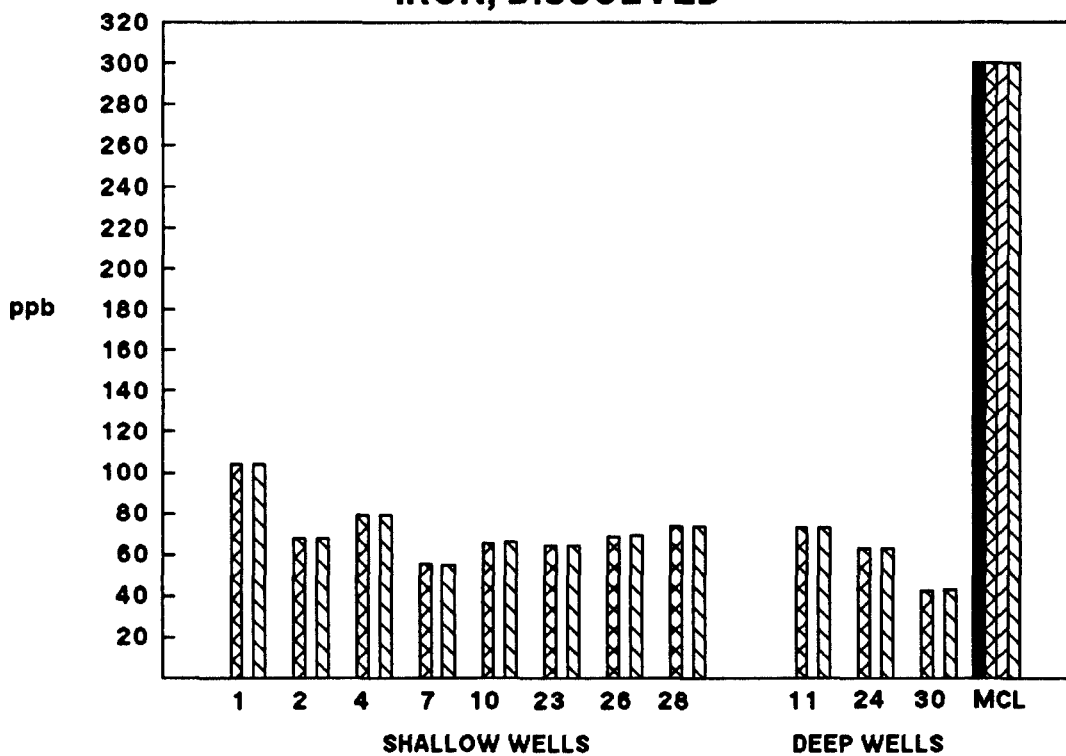
A-10

WASTE DISPOSAL, INCORPORATED

IRON, TOTAL



IRON, DISSOLVED

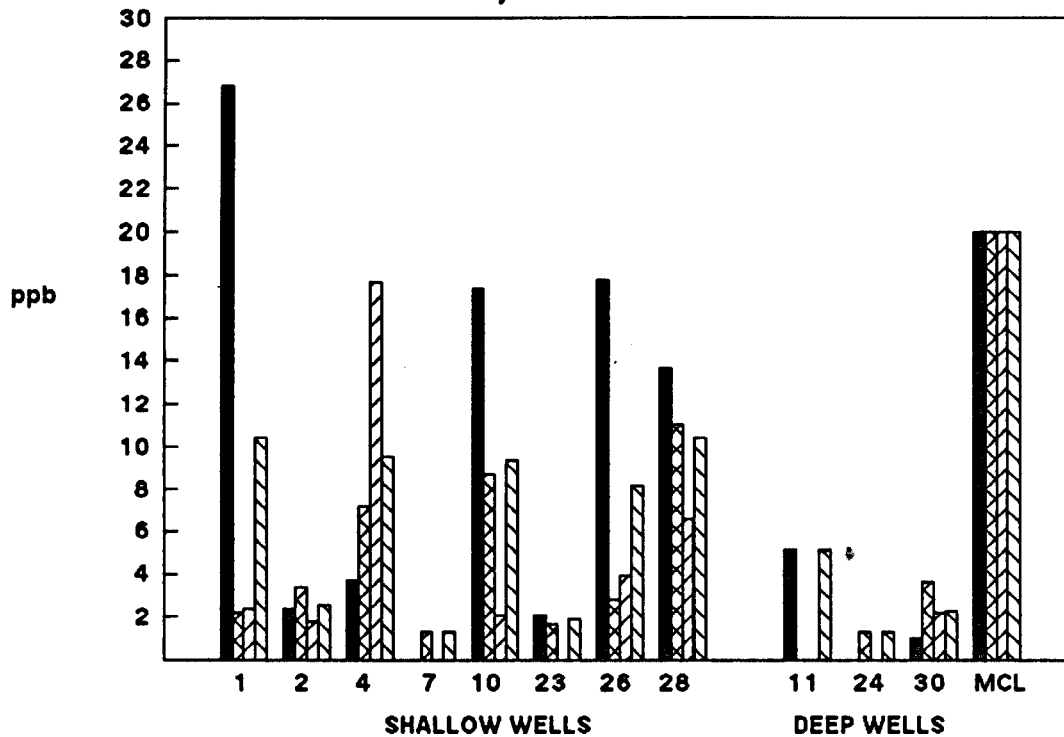


FEB 92
 MAY 92
 AUG 92
 AVERAGE 1992

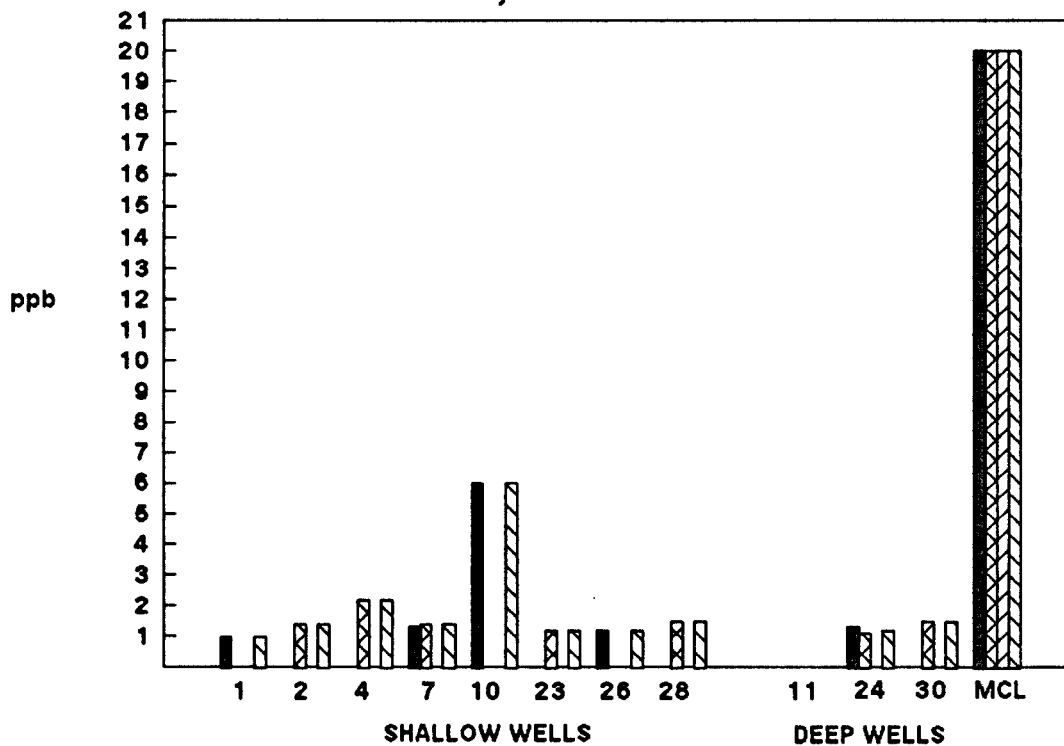
K-11

WASTE DISPOSAL, INCORPORATED

LEAD, TOTAL



LEAD, DISSOLVED

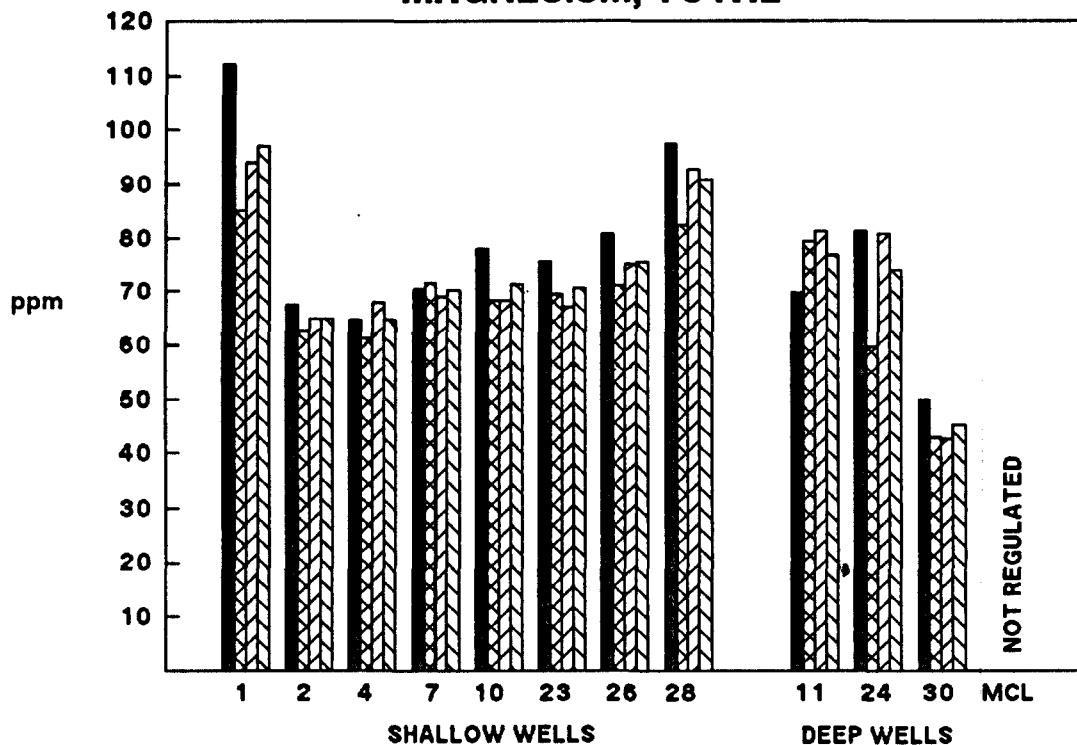


FEB 92
 MAY 92
 AUG 92
 AVERAGE 1992

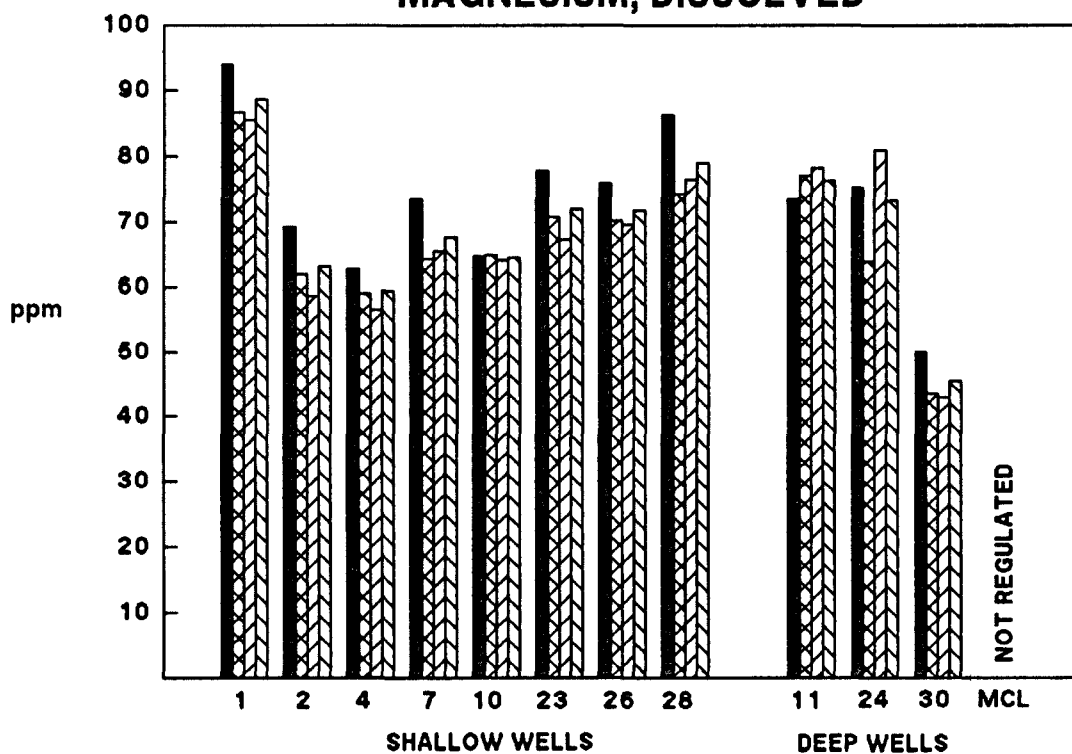
A-12

WASTE DISPOSAL, INCORPORATED

MAGNESIUM, TOTAL



MAGNESIUM, DISSOLVED



■ FEB 92

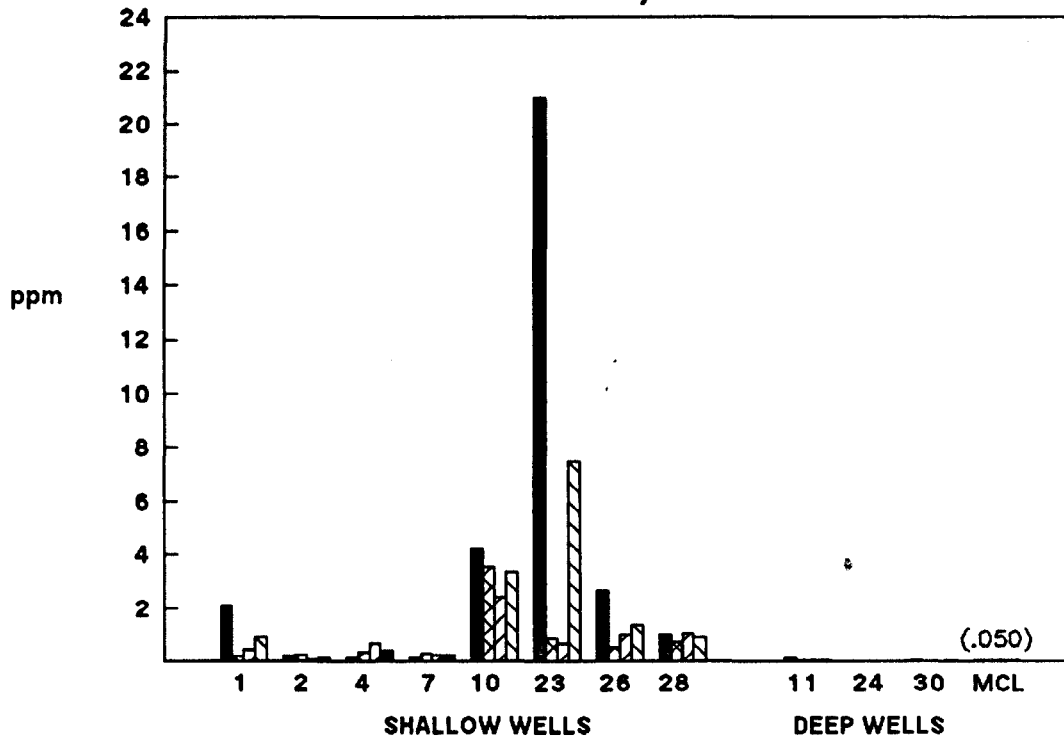
▨ MAY 92

▧ AUG 92

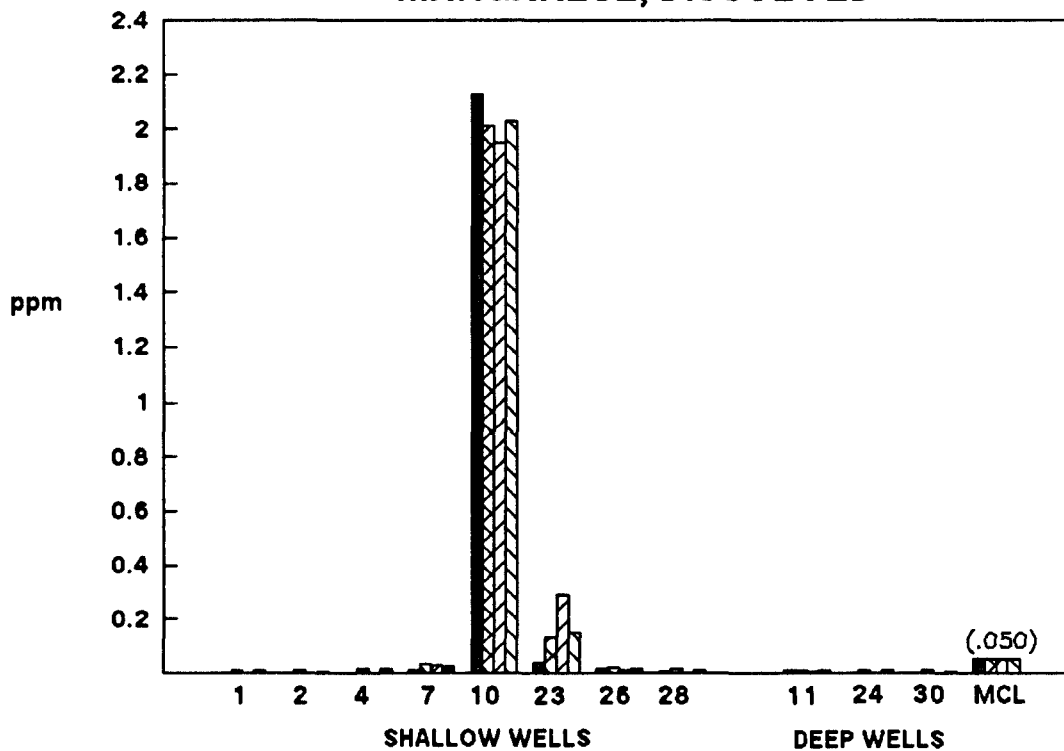
▩ AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

MANGANESE, TOTAL



MANGANESE, DISSOLVED



■ FEB 92

▣ MAY 92

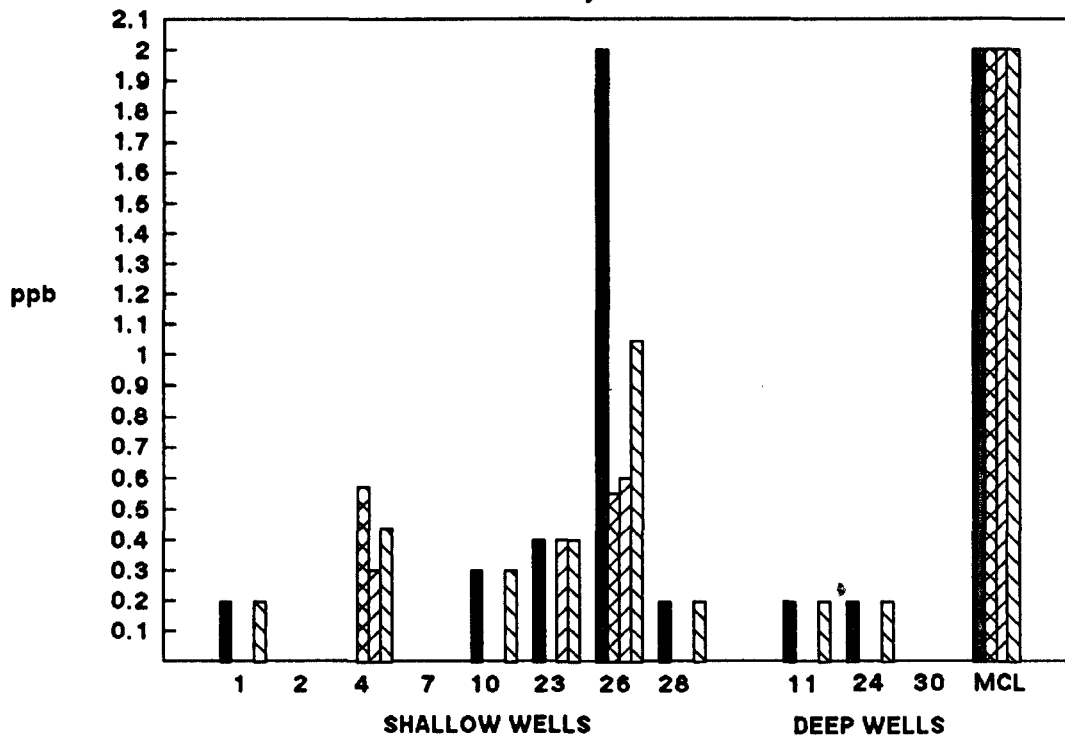
▤ AUG 92

□ AVERAGE 1992

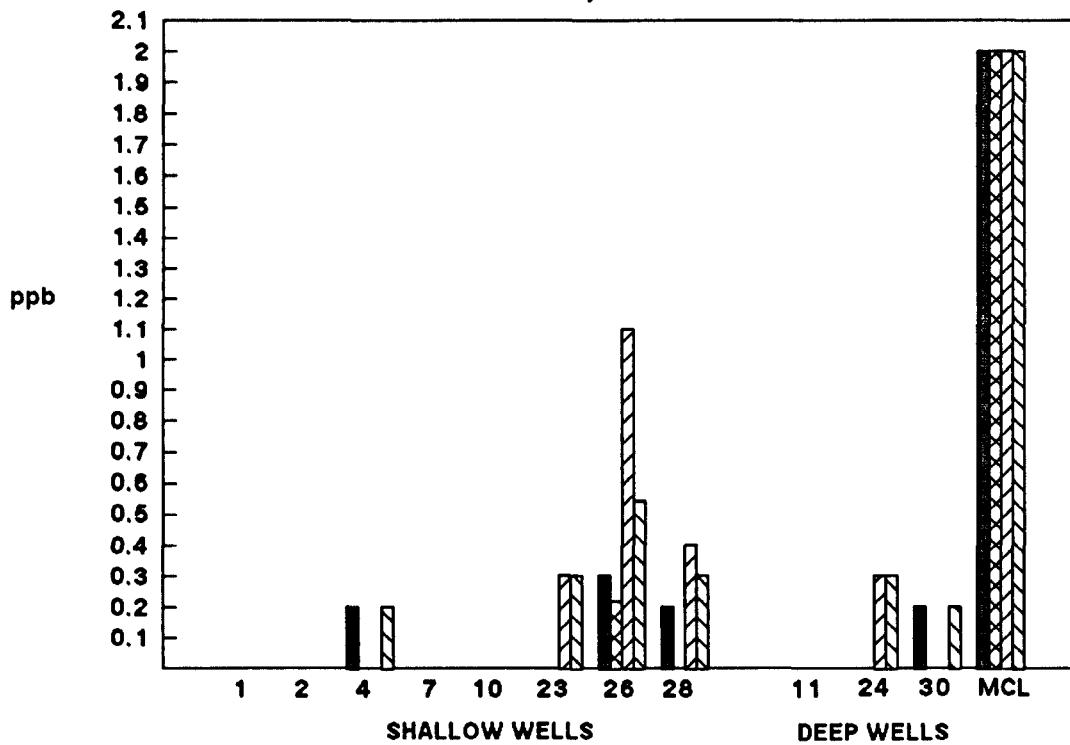
A-14

WASTE DISPOSAL, INCORPORATED

MERCURY, TOTAL



MERCURY, DISSOLVED



FEB 92

MAY 92

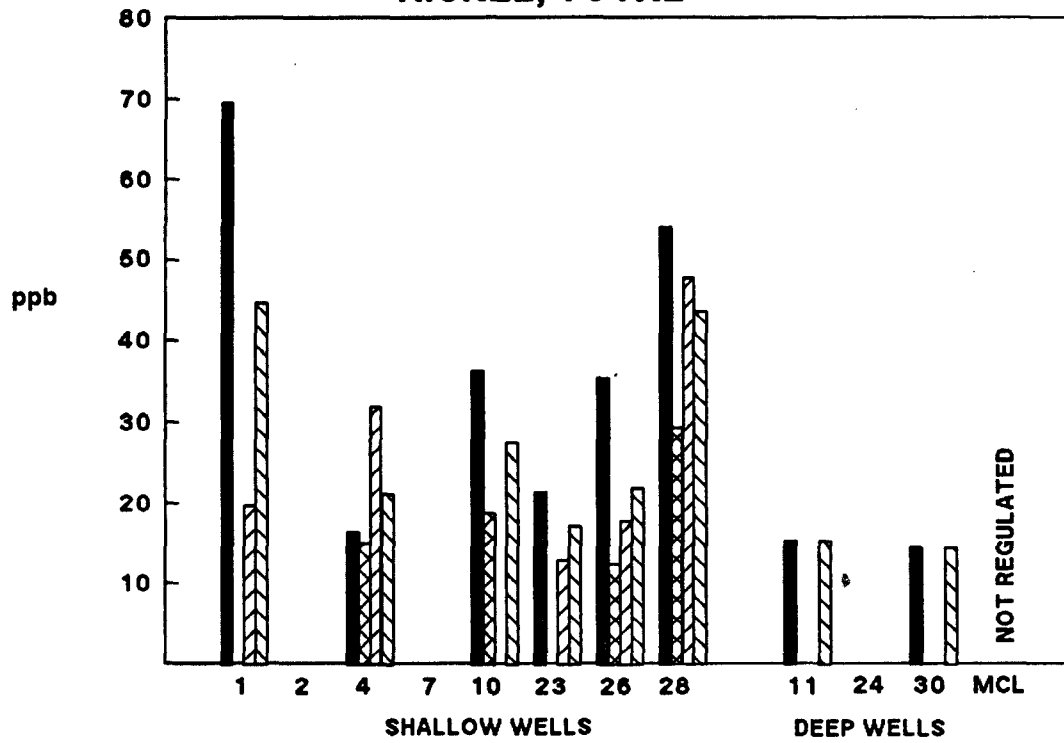
AUG 92

AVERAGE 1992

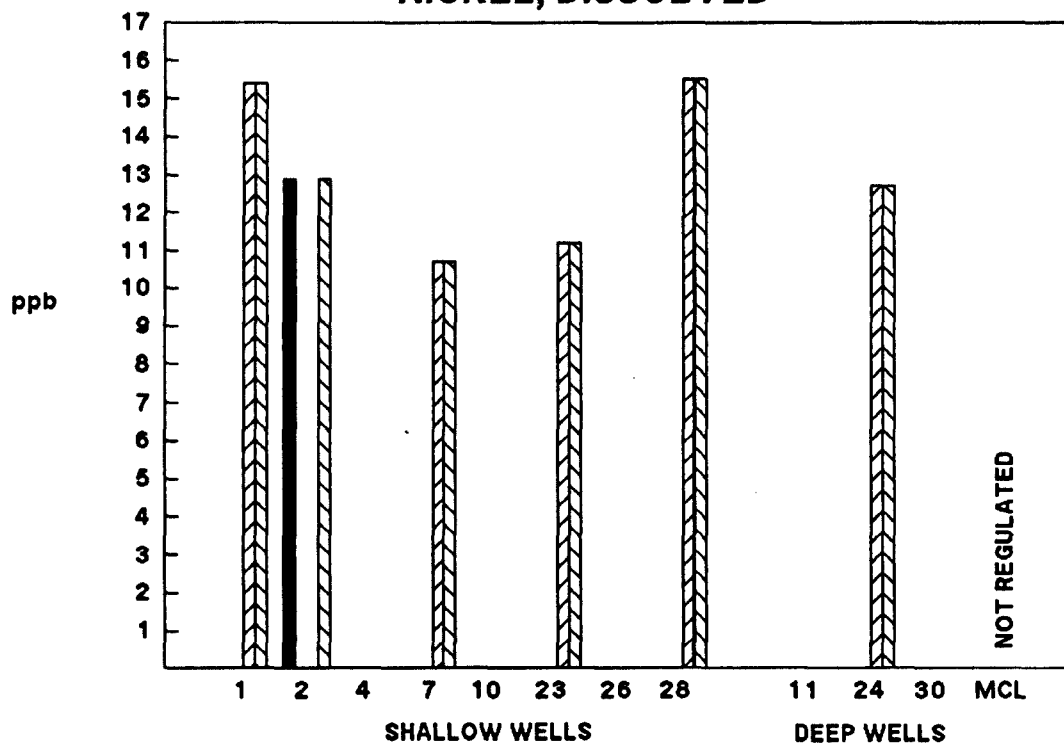
A-15

WASTE DISPOSAL, INCORPORATED

NICKEL, TOTAL



NICKEL, DISSOLVED



FEB 92

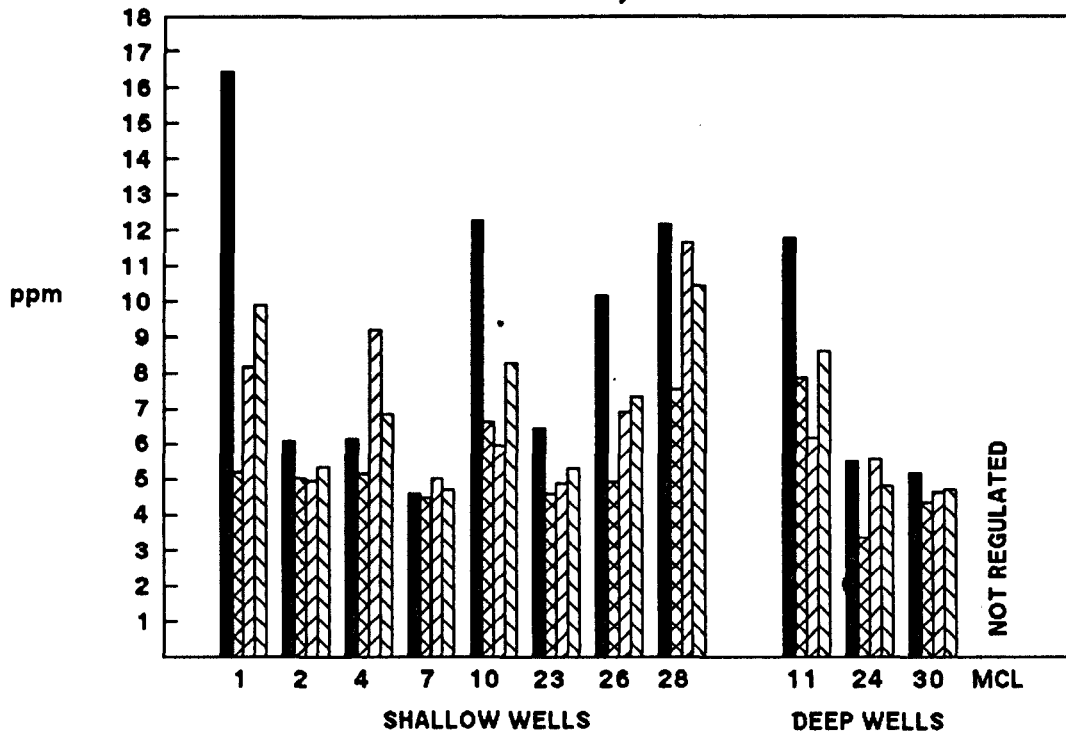
MAY 92

AUG 92

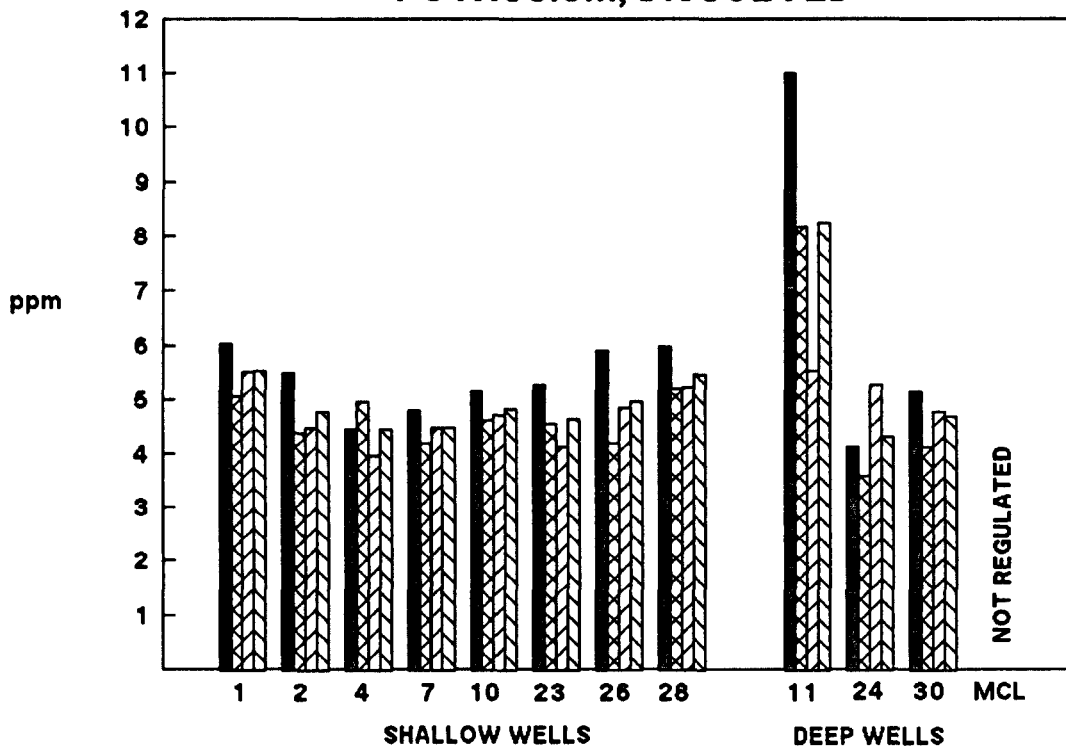
AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

POTASSIUM, TOTAL



POTASSIUM, DISSOLVED



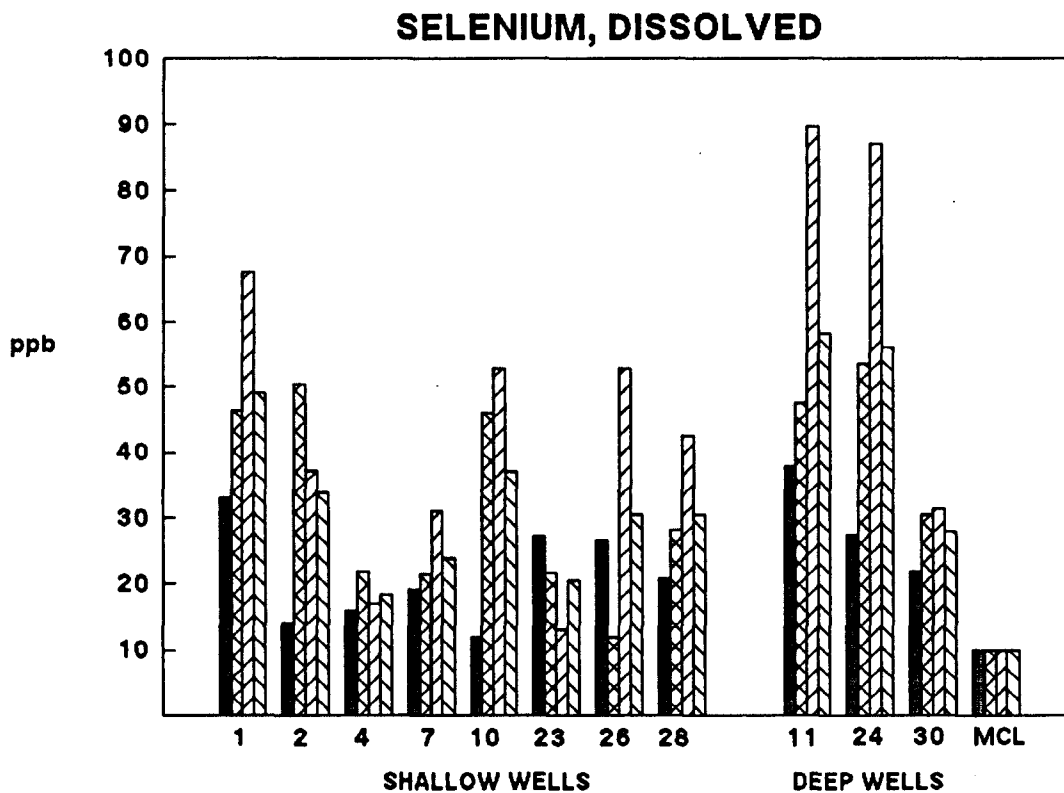
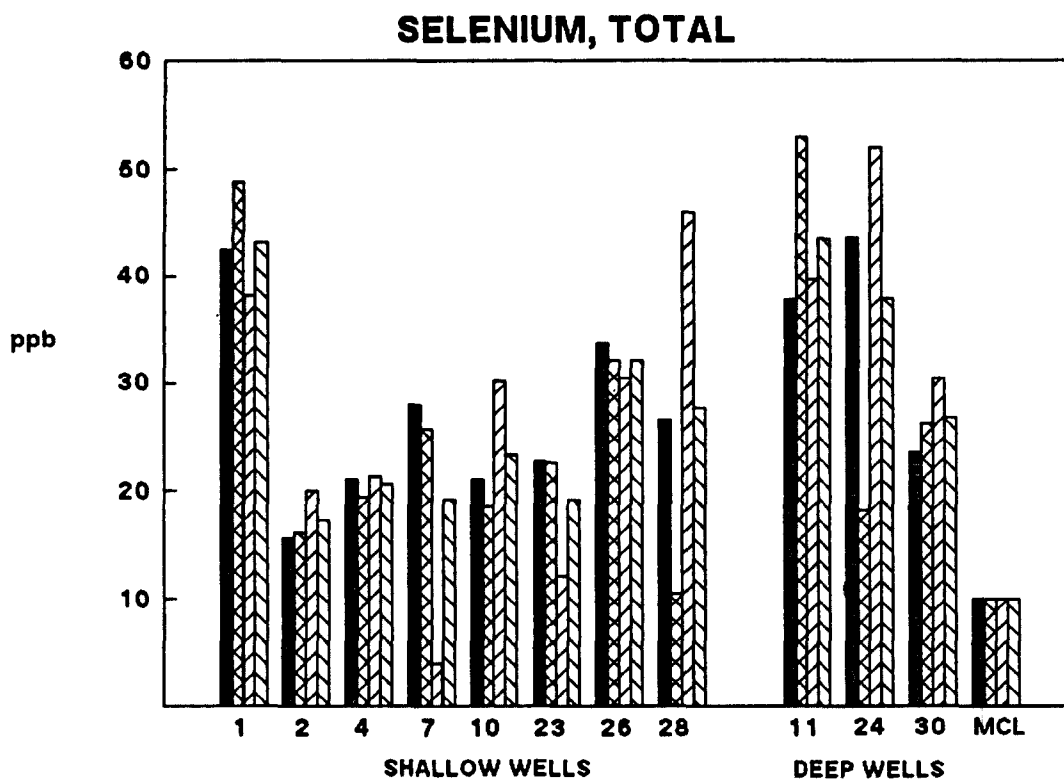
■ FEB 92

▤ MAY 92

▥ AUG 92

▧ AVERAGE 1992

WASTE DISPOSAL, INCORPORATED



■ FEB 92

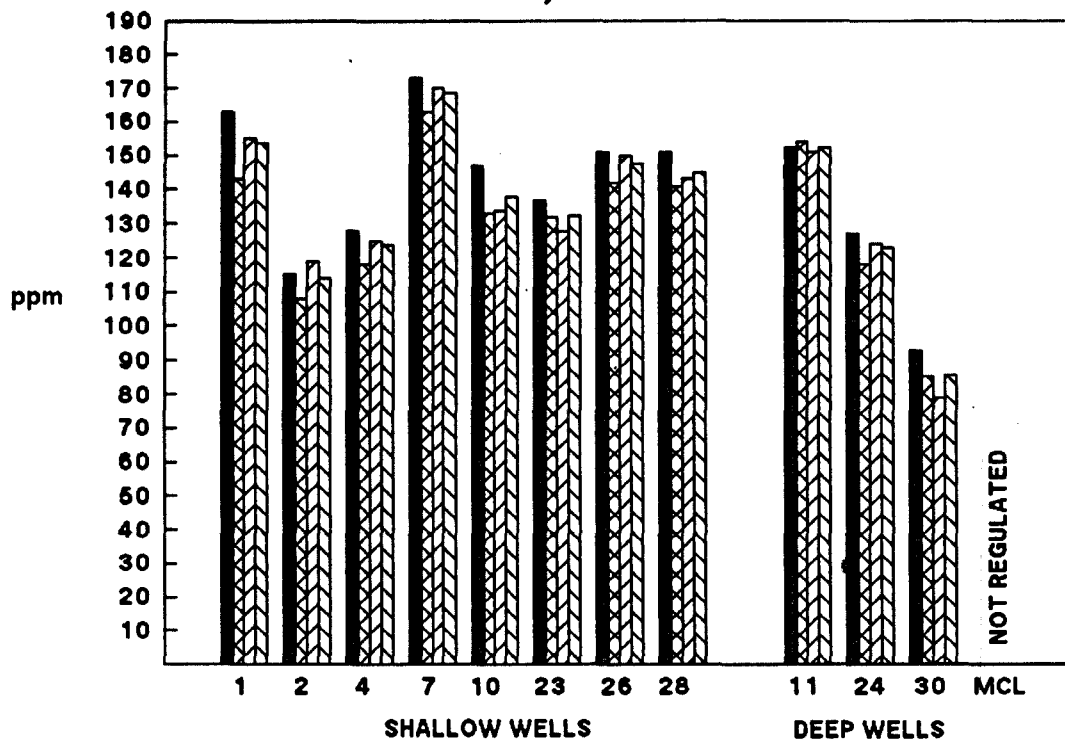
▤ MAY 92

▥ AUG 92

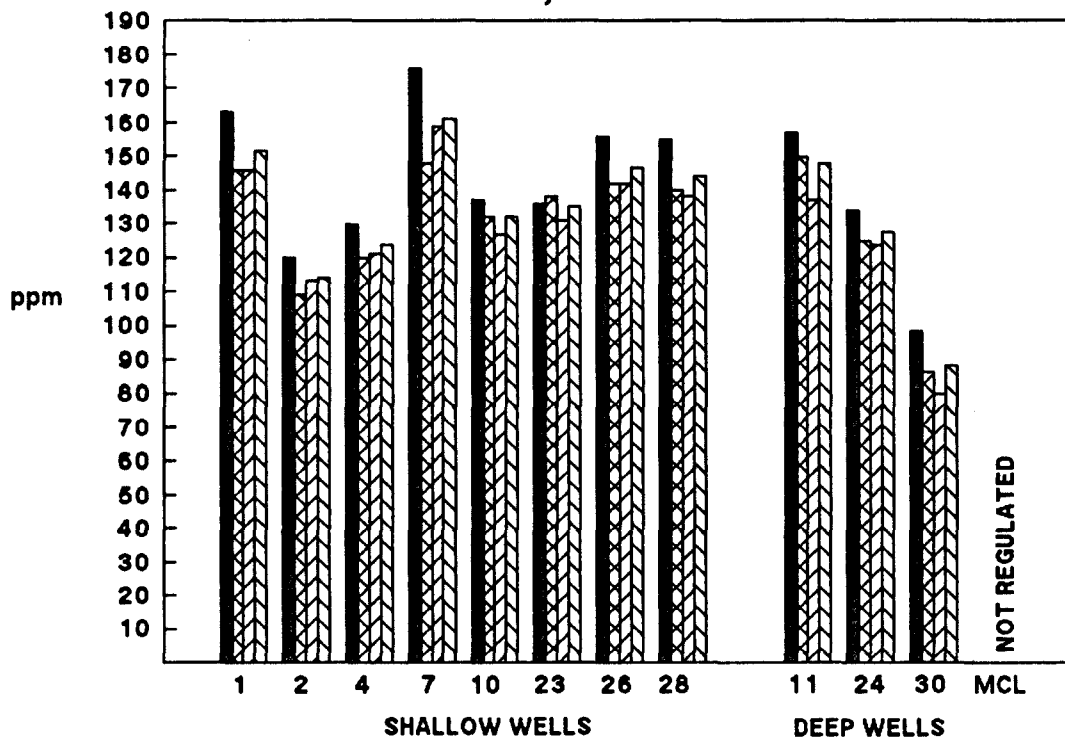
▧ AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

SODIUM, TOTAL



SODIUM, DISSOLVED



FEB 92

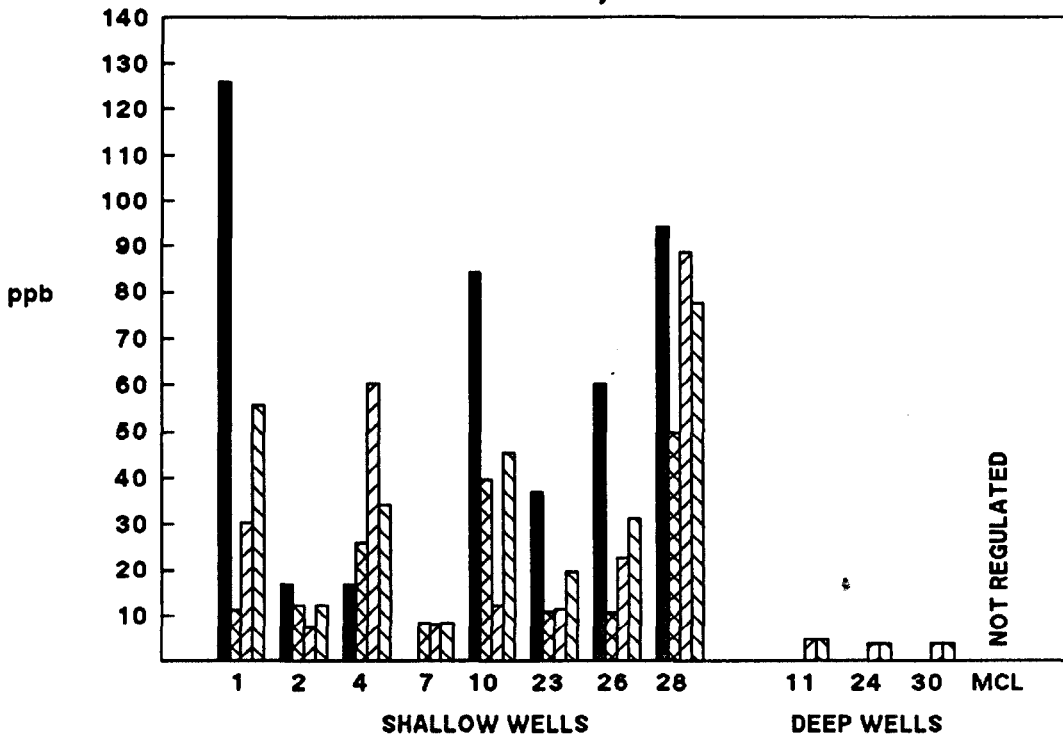
MAY 92

AUG 92

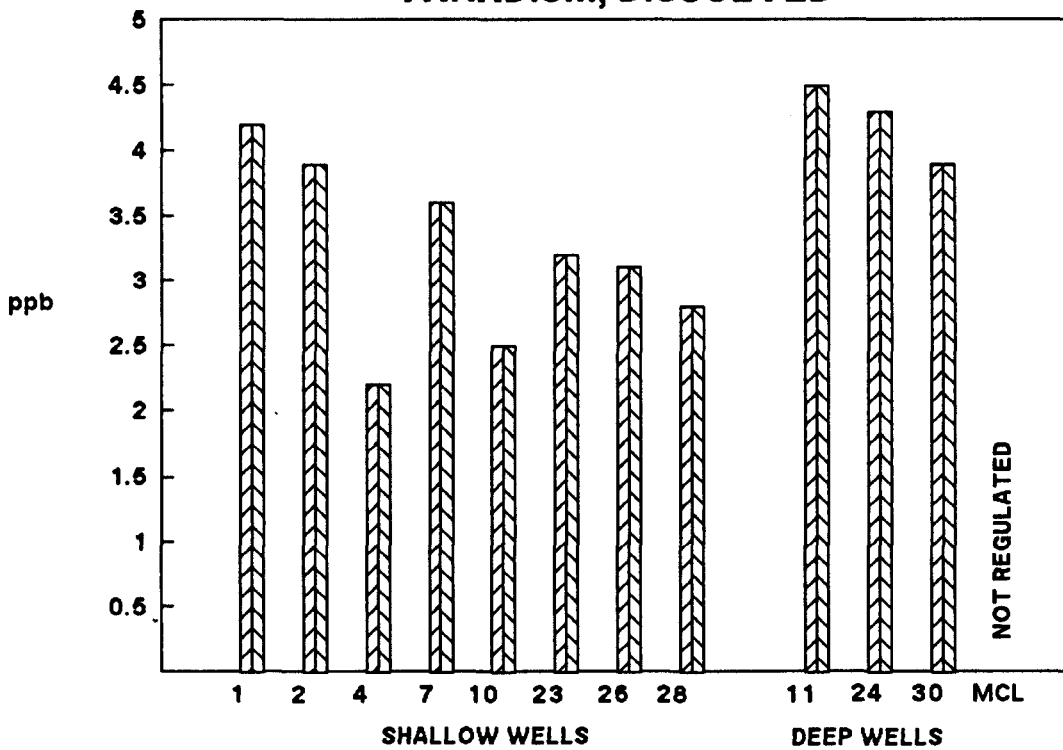
AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

VANADIUM, TOTAL



VANADIUM, DISSOLVED



■ FEB 92

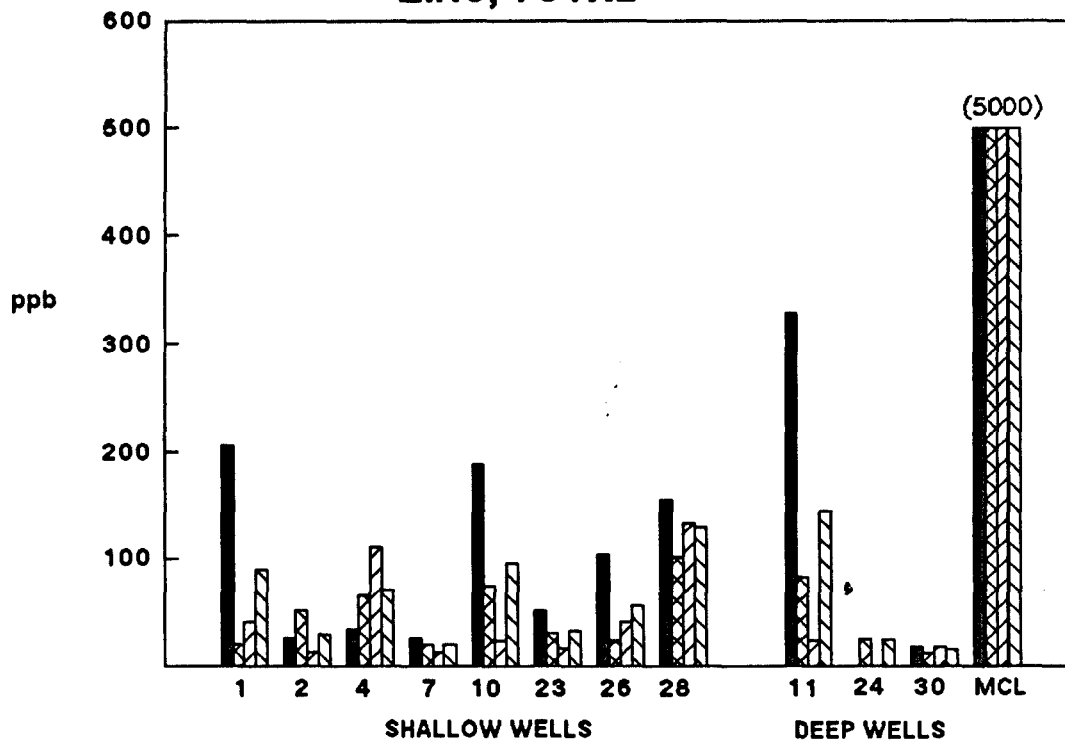
▣ MAY 92

▤ AUG 92

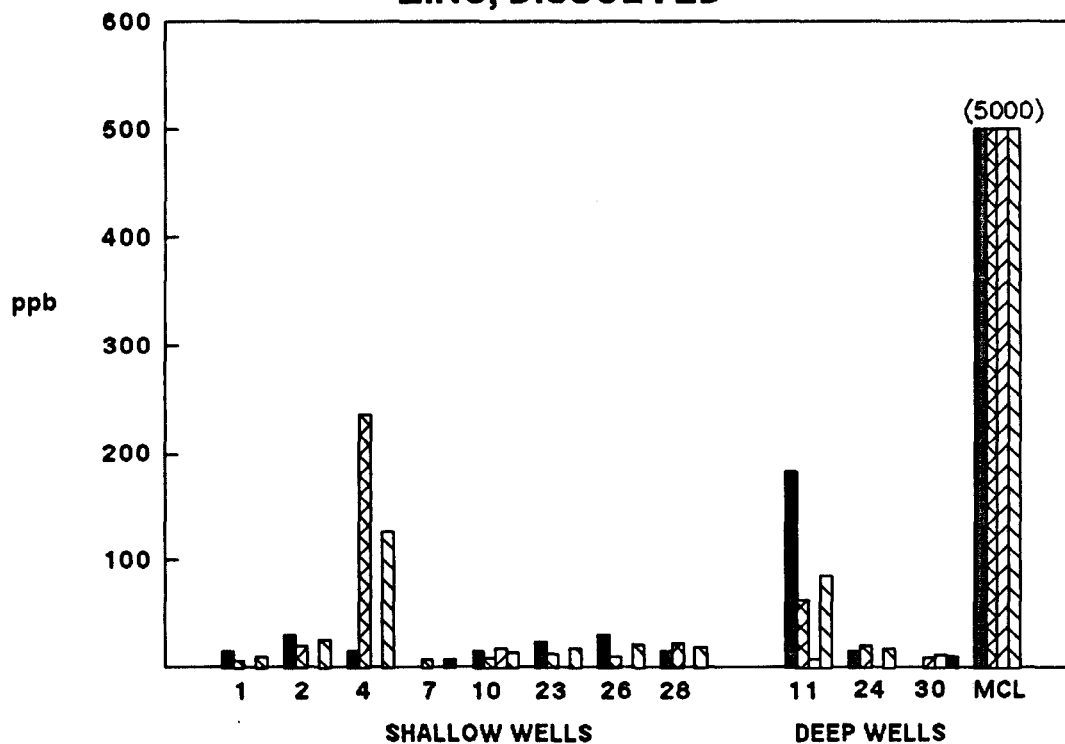
▥ AVERAGE 1992

WASTE DISPOSAL, INCORPORATED

ZINC, TOTAL



ZINC, DISSOLVED



■ FEB 92

▣ MAY 92

▤ AUG 92

▥ AVERAGE 1992

APPENDIX B
DATA VALIDATION REPORTS - FEBRUARY



ICF TECHNOLOGY INCORPORATED

APR 20 1992

MEMORANDUM

DATE: April 16, 1992

SUBJECT: Review of Analytical Data

FROM: Carolyn Studeny *[Signature]*
ESAT Senior Organic Data Reviewer
ICF Technology, Inc.

THROUGH: Jacob Silva *[Signature]*
Environmental Scientist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S27 Memo #1
SDG NO.:	920228
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Volatiles
SAMPLE NO.:	18 Water Samples "In Case Summary"
COLLECTION DATE:	February 11 through 13, 1992
REVIEWER:	Ian Jensen ESAT/ICF Technology, Inc.
TELEPHONE NUMBER:	(415) 882-3187

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] FYI

cc: Brenda Bettencourt

B-1

Data Validation Report

Case No.: LV2S27 Memo #1
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Ian Jensen, ESAT/ICF Technology, Inc.
Date: April 16, 1992

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers: 920201, 920202, 920204, 920207, 920209,
920210, 920211, 920212, 920217, 920223,
920224, 920226, 920228, 920230 and 920232
through 920235
Concentration and Matrix: Low Level Water
Analysis: RAS Volatiles
SOW: 3/90
Collection Date: February 11 through 13, 1992
Sample Receipt Date: February 13 and 14, 1992
Analysis Date: February 14 through 19, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): 920235
Equipment Blanks (EB): 920232 and 920233
Background Samples (BG): None
Field Duplicates (D1): 920201 and 920212
(D2): 920207 and 920217

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK1: 920201, 920202, 920204, 920228, 920230 and
920232
VBLK2: 920207, 920209, 920210, 920211, 920212,
920217, 920223, 920224, 920226, 920226-MS and
920226-DS
VBLK3: 920233, 920234 and 920235

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers
1C: Tentatively Identified Compounds
2: Sample Quantitation Limits of Target Compound
List (TCL) Analytes

ADDITIONAL COMMENTS:

This report was prepared according to the EPA draft document, "National
Functional Guidelines for Organic Data Review," December, 1990.
(6/91 Revision)

II. Validation Summary

	VOA		BNA		PEST	
	Acceptable/Comment		Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[Y]	[C]	[]	[]	[]	[]
GC/MS TUNE/GC PERFORMANCE	[Y]	[]	[]	[]	[]	[]
CALIBRATIONS	[Y]	[]	[]	[]	[]	[]
FIELD QC	[N]	[B]	[]	[]	[]	[]
LABORATORY BLANKS	[Y]	[]	[]	[]	[]	[]
SURROGATES	[Y]	[]	[]	[]	[]	[]
MATRIX SPIKE/DUPLICATES	[Y]	[]	[]	[]	[]	[]
INTERNAL STANDARDS	[Y]	[]	[]	[]	[]	[]
COMPOUND IDENTIFICATION	[Y]	[]	[]	[]	[]	[]
COMPOUND QUANTITATION	[Y]	[A]	[]	[]	[]	[]
SYSTEM PERFORMANCE	[Y]	[D]	[]	[]	[]	[]

N/A - Not Applicable

III. Validity and Comments

- A. The results reported in Table 1A for the following analytes are considered as estimates (J) and usable for limited purposes only:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable but quantitatively unreliable due to the uncertainty in analytical precision near the limit of detection.

- B. Due to field blank contamination problems, the results reported in Table 1A for the following analytes are considered as estimates (J) and usable for limited purposes only:

- Chloroform in sample numbers 920207 and 920217

Chloroform was found in equipment blanks 920232 and 920233 and field blank 920235 at concentrations of 37 ug/L, 34 ug/L and 1 ug/L, respectively. The results for the samples listed above are considered as non-detected and estimated (U,J) according to the blank qualification rules.

- C. The 40 CFR 136 technical holding time was not exceeded for any of the samples analyzed.
- D. All other results are considered valid and usable for all purposes. All quality control criteria have been met and are considered acceptable.

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ANALYTICAL RESULTS

Page 1 of 2

TABLE 1A*

Case No.: LV2S27 Memo #1

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Ian Jensen, ESAT/ICF Technology, Inc.

Date: April 16, 1992

Analysis Type: Low Level Water Samples for
RAS Volatiles

Concentration in ug/L

Sample Location Sample I.D.	920201 D1			920202			920204			920207 D2			920209			920210			920211		
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloroform	10 U			10 U			10 U			10 U	J	B	10 U			10 U			10 U		
Trichloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Toluene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U			4 L	J	A	10 U			10 U		
Xylene (total)	10 U			10 U			10 U			10 U			18			10 U			10 U		

Sample Location Sample I.D.	920212 D1			920217 D2			920223			920224			920226			920228			920230		
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloroform	10 U			10 U	J	B	10 U			10 U			10 U			10 U			10 U		
Trichloroethene	10 U			10 U			10 U			10 U			8 L	J	A	10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			2 L	J	A	10 U			10 U			10 U		
Toluene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Xylene (total)	10 U			10 U			10 U			10 U			10 U			10 U			10 U		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

Page 2 of 2

TABLE 1A*

Case No.: LV2S27 Memo #1

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Ian Jensen, ESAT/ICF Technology, Inc.

Date: April 16, 1992

Analysis Type: Low Level Water Samples for
RAS Volatiles

Concentration in ug/L

Sample Location Sample I.D.	920232 EB			920233 EB			920234			920235 FB			Method Blank VBLK1			Method Blank VBLK2			Method Blank VBLK3		
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloroform	37			34			10 U			1 L J A			10 U			10 U			10 U		
Trichloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Toluene	10 U			10 U			2 L J A			10 U			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Xylene (total)	10 U			10 U			10 U			10 U			10 U			10 U			10 U		

Sample Location Sample I.D.	CRQL																				
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloroform	10																				
Trichloroethene	10																				
Tetrachloroethene	10																				
Toluene	10																				
Ethylbenzene	10																				
Xylene (total)	10																				

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. The compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 1C
Detected Tentatively Identified Compounds (TICs)

Case No.: LV2S27 Memo #1
 Site: Waste Disposal, Inc.
 Laboratory: Region IX, Las Vegas
 Reviewer: Ian Jensen
 Date: ESAT/ICF Technology, Inc.
 April 16, 1992

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating^a (Remarks)</u>
920201	None Found	VOA			
920202	None Found	VOA			
920204	None Found	VOA			
920207	None Found	VOA			
920209	None Found	VOA			
920210	None Found	VOA			
920211	None Found	VOA			
920212	None Found	VOA			
920217	None Found	VOA			
920223	None Found	VOA			
920224	Unknown hydrocarbon	VOA	4.75	8 J	
	Unknown hydrocarbon	VOA	6.55	35 J	
920226	None Found	VOA			
920228	None Found	VOA			
920230	None Found	VOA			
920232	Unknown hydrocarbon	VOA	5.27	14 J	A
920233	Unknown hydrocarbon	VOA	5.23	28 J	A
920234	None Found	VOA			
920235	None Found	VOA			

J (estimated): Value is considered usable for limited purposes.

^aRating codes--probability that identification is correct:

A = High

B = Moderate

C = Low

TABLE 2
Sample Quantitation Limits

Case No.: LV2S27 Memo #1
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Ian Jensen
 ESAT/ICF Technology, Inc.
Date: April 16, 1992

<u>Volatile Compounds</u>	<u>Units, ug/L</u>	<u>Q</u>	<u>C</u>
Chloromethane	10		
Bromomethane	10		
Vinyl chloride	10		
Chloroethane	10		
Methylene chloride	10		
Acetone	10		
Carbon disulfide	10		
1,1-Dichloroethene	10		
1,1-Dichloroethane	10		
1,2-Dichloroethene (total)	10		
Chloroform	10		
1,2-Dichloroethane	10		
2-Butanone	10		
1,1,1-Trichloroethane	10		
Carbon tetrachloride	10		
Bromodichloromethane	10		
1,2-Dichloropropane	10		
1,1,2,2-Tetrachloroethane	10		
trans-1,3-Dichloropropene	10		
Trichloroethene	10		
Dibromochloromethane	10		
1,1,2-Trichloroethane	10		
Benzene	10		
cis-1,3-Dichloropropene	10		
Bromoform	10		
2-Hexanone	10		
4-Methyl-2-pentanone	10		
Tetrachloroethene	10		
Toluene	10		
Chlorobenzene	10		
Ethylbenzene	10		
Styrene	10		
Total Xylenes	10		

Q - Qualifier
C - Comment

TABLE 2
(cont'd)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Volatiles</u>
920201	1.00
920202	1.00
920204	1.00
920207	1.00
920209	1.00
920210	1.00
920211	1.00
920212	1.00
920217	1.00
920223	1.00
920224	1.00
920226	1.00
920228	1.00
920230	1.00
920232	1.00
920233	1.00
920234	1.00
920235	1.00
Method Blanks	1.00

TPO: [] ACTION [X] FYI

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S27 Memo #1 LABORATORY Region IX, Las Vegas

SDG NO. 920228 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE April 16, 1992

NO. OF SAMPLES 18 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	<u>0</u>	_____	_____	_____
2. GC-MS TUNE/GC PERFORMANCE	<u>0</u>	_____	_____	_____
3. INITIAL CALIBRATIONS	<u>0</u>	_____	_____	_____
4. CONTINUING CALIBRATIONS	<u>0</u>	_____	_____	_____
5. FIELD QC	<u>X</u>	_____	_____	_____
6. LABORATORY BLANKS	<u>0</u>	_____	_____	_____
7. SURROGATES	<u>0</u>	_____	_____	_____
8. MATRIX SPIKE/DUPLICATES	<u>0</u>	_____	_____	_____
9. REGIONAL QC ("F" - not applicable)	<u>F</u>	_____	_____	_____
10. INTERNAL STANDARDS	<u>0</u>	_____	_____	_____
11. COMPOUND IDENTIFICATION	<u>0</u>	_____	_____	_____
12. COMPOUND QUANTITATION	<u>X</u>	_____	_____	_____
13. SYSTEM PERFORMANCE	<u>0</u>	_____	_____	_____
14. OVERALL ASSESSMENT	<u>X</u>	_____	_____	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

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ICF TECHNOLOGY INCORPORATED

MAY 01 1992

MEMORANDUM

DATE: April 28, 1992

SUBJECT: Review of Analytical Data

FROM: Carolyn Studeny *CS*
ESAT Senior Organic Data Reviewer
ICF Technology, Inc.

THROUGH: Jacob Silva *J. Silva*
Environmental Scientist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S27 Memo #3
SDG NO.:	920228
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Semivolatiles
SAMPLE NO.:	18 Water Samples (In Case Summary)
COLLECTION DATE:	February 11 through 13, 1992
REVIEWER:	Ian Jensen
	ESAT/ICF Technology, Inc.
TELEPHONE NUMBER:	(415) 882-3187

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] FYI

cc: Brenda Bettencourt

Data Validation Report

Case No.: LV2S27 Memo #3
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Ian Jensen, ESAT/ICF Technology, Inc.
Date: April 28, 1992

I. Case Summary

SAMPLE INFORMATION:

BNA Sample Numbers: 920201, 920202, 920204, 920207, 920209
through 920212, 920217, 920223, 920224,
920226, 920228, 920230, 920232 through 920235
Concentration and Matrix: Low Level Water
Analysis: RAS Semivolatiles
SOW: 3/90
Collection Date: February 11 through 13, 1992
Sample Receipt Date: February 13 and 14, 1992
Extraction Date: February 13 and 18, 1992
Analysis Date: February 28 through March 10, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): 920235
Equipment Blanks (EB): 920232 and 920233
Background Samples (BG): None
Field Duplicates (D1): 920201 and 920212
(D2): 920207 and 920217

METHOD BLANKS AND ASSOCIATED SAMPLES:

WBLK(RB022801): 920228, 920230 and 920232
WBLK(RB022802): 920201, 920202, 920209, 920210, 920217,
920233, 920234 and 920235
WBLK(RB030602): 920204, 920211, 920212, 920223 and 920224
WBLK(RB031001): 920207, 920226, 920226MS and 920226MSD

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers
1C: Tentatively Identified Compounds
2: Sample Quantitation Limits of Target Compound
List (TCL) Analytes

ADDITIONAL COMMENTS:

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

MS - Matrix Spike; MSD - Matrix Spike Duplicate

ESATQA9A-6010/ILV2S273.RPT

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II. Validation Summary

	VOA		BNA		PEST	
	Acceptable/Comment		Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[]	[]	[Y]	[E]	[]	[]
GC/MS TUNE/GC PERFORMANCE	[]	[]	[Y]	[]	[]	[]
CALIBRATIONS	[]	[]	[N]	[B,C]	[]	[]
FIELD QC	[]	[]	[Y]	[]	[]	[]
LABORATORY BLANKS	[]	[]	[Y]	[A]	[]	[]
SURROGATES	[]	[]	[Y]	[]	[]	[]
MATRIX SPIKE/DUPLICATES	[]	[]	[N]	[D]	[]	[]
INTERNAL STANDARDS	[]	[]	[Y]	[]	[]	[]
COMPOUND IDENTIFICATION	[]	[]	[Y]	[]	[]	[]
COMPOUND QUANTITATION	[]	[]	[Y]	[]	[]	[]
SYSTEM PERFORMANCE	[]	[]	[Y]	[F]	[]	[]

N/A - Not Applicable

III. Validity and Comments

- A. Due to laboratory blank contamination problems, the following analytes are considered as estimates (J) and usable for limited purposes only (see Table 1A):

- Di-n-butylphthalate in sample number 920224
- bis(2-Ethylhexyl)phthalate in sample numbers 920202, 920204, 920207, 920209, 920211, 920217, 920223, 920224, 920226, 920228, 920230, 920233 and 920234

bis(2-Ethylhexyl)phthalate was found in method blanks WBLK(RB022802), WBLK(RB030602) and WBLK(RB031001) at concentrations of 19 ug/L, 19 ug/L and 17 ug/L, respectively. Although not detected in any of the laboratory method blanks, di-n-butylphthalate has been historically found as a common laboratory contaminant. It is the opinion of the reviewer that the di-n-butylphthalate found in the samples listed above are artifacts.

The results for the samples listed above are considered as non-detected and estimated (U,J) and quantitation limits have been increased where appropriate, according to the blank qualification rules.

- B. Due to low Relative Response Factors (RRFs) in the Initial and Continuing Calibrations, the quantitation limits for the following analytes are considered as estimates (J) and usable for limited purposes only (see Table 2):
- 2,4-Dinitrophenol and 4,6-dinitro-2-methylphenol in sample numbers 920204, 920211, 920212, 920223 and 920224 and method blank WBLK(RB030602)

An average Relative Response Factor (RRF) of 0.026 was observed for 2,4-dinitrophenol in the Initial Calibration performed on March 5, 1992. Relative Response Factors of 0.020 and 0.045 were observed

for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol, respectively, in the Continuing Calibration performed on March 6, 1992. These values were below the 0.05 QC limit.

Since the results for these analytes are non-detected, false negatives may exist.

- C. Due to large percent Relative Standard Deviation (%RSD) in the Initial Calibration, the quantitation limits for the following analytes are considered as estimates (J) and usable for limited purposes only (see Table 2):

- 2,4-Dinitrophenol and 4,6-dinitro-2-methylphenol in sample numbers 920204, 920211, 920212, 920223 and 920224 and method blank WBLK(RB030602)

Percent Relative Standard Deviations of 47% and 36% were observed for 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol, respectively, in the Initial Calibration performed on March 5, 1992. These values exceed the <30% advisory QC limit.

- D. The percent Recovery for the analytes below, in the Matrix Spike and Matrix Spike Duplicate, exceeded the QC limits.

<u>Analyte</u>	<u>MS %Recovery</u>	<u>MSD %Recovery</u>	<u>QC limit</u>
4-Nitrophenol	109%	111%	10-80%
2,4-Dinitrotoluene	107%	106%	24-96%
Pentachlorophenol	124%	110%	9-103%

The effect on the quality of data is not known.

- E. The 40 CFR 136 technical holding times were not exceeded for any of the samples analyzed.
- F. All other results are considered valid and usable for all purposes. All quality control criteria have been met and are considered acceptable.

ANALYTICAL RESULTS
TABLE 1A*

Page 2 of 2

Case No.: LV2827 Memo #03
Site: Waste Disposal, Inc.
Lab.: Region IX, Las Vegas
Reviewer: Ian Jensen, ESAT/ICF Technology, Inc.
Date: April 28, 1992

Analysis Type: Low Level Water Samples
for RAS Semivolatiles

Concentration in ug/L

Sample Location Sample I.D.	920232 EB			920233 EB			920234			920235 FB			Method Blank WBLK(RB022801)			Method Blank WBLK(RB022802)			Method Blank WBLK(RB030602)		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Di-n-butylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
bis(2-Ethylhexyl)phthalate	10 U			16 U J A			10 U J A			10 U			10 U			19			19		
Sample Location Sample I.D.	Method Blank WBLK(RB031001)			CRQL																	
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Di-n-butylphthalate	10 U			10																	
bis(2-Ethylhexyl)phthalate	17			10																	

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

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TABLE 1A*

Case No.: LV2S27 Memo #03
Site: Waste Disposal, Inc.
Lab.: Region IX, Las Vegas
Reviewer: Ian Jensen, ESAT/ICP Technology, Inc.
Date: April 28, 1992

Analysis Type: Low Level Water Samples
for RAS Semivolatiles

Concentration in ug/L

[illegible]

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.—Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL—Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG—Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. The compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

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TABLE 1C
Detected Tentatively Identified Compounds (TICs)

Case No.: LV2S27 Memo #3
 Site: Waste Disposal, Inc.
 Laboratory: Region IX, Las Vegas
 Reviewer: Ian Jensen
 ESAT/ICF Technology, Inc.
 Date: April 28, 1992

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating^a (Remarks)</u>
920201	Unknown	BNA	32.25	2 J	
920202	Unknown	BNA	10.95	10 J	
920204	Unknown	BNA	29.47	5 J	
	Unknown	BNA	30.62	4 J	
	Carbonochloridate cholestenol	BNA	32.55	8 J	B
920207	Unknown	BNA	32.20	3 J	
920209	Substituted benzene	BNA	8.57	10 J	B
	Substituted benzene	BNA	9.10	4 J	B
920210	Unknown	BNA	10.95	10 J	
	Unknown	BNA	13.20	8 J	
	Unknown	BNA	14.90	10 J	
	Unknown	BNA	32.25	5 J	
920211	Carbonochloridate cholestenol	BNA	32.55	5 J	B
920212	Unknown	BNA	30.60	4 J	
	Carbonochloridate cholestenol	BNA	32.53	4 J	B
920217	None Found	BNA			
920223	Unknown	BNA	8.47	4 J	
	Unknown	BNA	9.77	20 J	
	Carbonochloridate cholestenol	BNA	32.53	3 J	B
920224	Unknown	BNA	30.60	2 J	
920226	None Found	BNA			

J (estimated): Value is considered usable for limited purposes.

^aRating codes--probability that identification is correct:

A - High

B - Moderate

C - Low

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TABLE 1C
(continued)

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating^a (Remarks)</u>
920228	Unknown	BNA	8.78	5 J	
	Unknown	BNA	10.95	9 J	
920230	Unknown	BNA	10.95	6 J	
920232	None Found	BNA			
920233	None Found	BNA			
920234	Butoxy ethanol	BNA	9.35	20 J	B
	Ethyl hexanoic acid	BNA	13.50	10 J	C
	Unknown	BNA	18.12	5 J	
920235	None Found	BNA			

J (estimated): Value is considered usable for limited purposes.

^aRating codes--probability that identification is correct:

A - High

B - Moderate

C - Low

TABLE 2
Sample Quantitation Limits

Case No.: LV2S27 Memo #3
 Date: March Disposal, Inc.
 Location: Region IX, Las Vegas
 Division: Tom Jensen
 Subject: BOAT/ICF Technology, Inc.
 Date: April 23, 1992

[illegible]

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TABLE 2
(cont'd)

<u>Semivolatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Acenaphthene	10		
2,4-Dinitrophenol	25	J	B,C
4-Nitrophenol	25		
Dibenzofuran	10		
2,4-Dinitrotoluene	10		
2,6-Dinitrotoluene	10		
Diethylphthalate	10		
4-Chlorophenyl-phenylether	10		
Fluorene	10		
4-Nitroaniline	25		
4,6-Dinitro-2-methylphenol	25	J	B,C
N-Nitrosodiphenylamine	10		
4-Bromophenyl-phenylether	10		
Hexachlorobenzene	10		
Pentachlorophenol	25		
Phenanthrene	10		
Anthracene	10		
Carbazole	10		
Di-n-butylphthalate	10		
Fluoranthene	10		
Pyrene	10		
Butylbenzylphthalate	10		
3,3'-Dichlorobenzidine	10		
Benzo(a)anthracene	10		
bis(2-Ethylhexyl)phthalate	10		
Chrysene	10		
Di-n-octyl phthalate	10		
Benzo(b)fluoranthene	10		
Benzo(k)fluoranthene	10		
Benzo(a)pyrene	10		
Indeno(1,2,3-cd)pyrene	10		
Dibenz(a,h)anthracene	10		
Benzo(g,h,i)perylene	10		

Q - Qualifier

C - Comment

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TABLE 2
(cont'd)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Semivolatiles</u>
920201	1.00
920202	1.00
920204	1.00
920207	1.00
920209	1.00
920210	1.00
920211	1.00
920212	1.00
920217	1.00
920223	1.00
920224	1.00
920226	1.00
920228	1.00
920230	1.00
920232	1.00
920233	1.00
920234	1.00
920235	1.00
Method Blanks	1.00

TPO: [] ACTION [X] FYI

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S27 Memo #3 LABORATORY Region IX, Las Vegas

SDG NO. 920228 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE April 28, 1992

NO. OF SAMPLES 18 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	<u>0</u>	_____	_____
2. GC-MS TUNE/GC PERFORMANCE	_____	<u>0</u>	_____	_____
3. INITIAL CALIBRATIONS	_____	<u>X</u>	_____	_____
4. CONTINUING CALIBRATIONS	_____	<u>X</u>	_____	_____
5. FIELD BLANKS	_____	<u>0</u>	_____	_____
6. LABORATORY BLANKS	_____	<u>X</u>	_____	_____
7. SURROGATES	_____	<u>0</u>	_____	_____
8. MATRIX SPIKE/DUPLICATES	_____	<u>0</u>	_____	_____
9. REGIONAL QC ("F" - not applicable)	_____	<u>F</u>	_____	_____
10. INTERNAL STANDARDS	_____	<u>0</u>	_____	_____
11. COMPOUND IDENTIFICATION	_____	<u>0</u>	_____	_____
12. COMPOUND QUANTITATION	_____	<u>0</u>	_____	_____
13. SYSTEM PERFORMANCE	_____	<u>0</u>	_____	_____
14. OVERALL ASSESSMENT	_____	<u>X</u>	_____	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

B-23

B-24



ICF TECHNOLOGY INCORPORATED

MAY 18 1992

MEMORANDUM

DATE: May 13, 1992

SUBJECT: Review of Analytical Data

FROM: Carolyn Studeny
ESAT Senior Organic Data Reviewer
ICF Technology, Inc.

THROUGH: Jacob Silva *J. Silva*
Environmental Scientist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kay Lawrance
Remedial Project Manager
Enforcement Programs Section (H-7-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S27 Memo #02
SDG NO.:	920228
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Pesticides/PCBs
SAMPLE NO.:	18 Water Samples (See Case Summary)
COLLECTION DATE:	February 12 and 13, 1992
REVIEWER:	Anh Do ESAT/ICF Technology, Inc.
TELEPHONE NUMBER:	(415) 882-3052

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] FYI

cc: Brenda Bettencourt

B-25

Data Validation Report

Case No.: LV2S27 Memo #02
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Anh Do, ESAT/ICF Technology, Inc.
Date: May 13, 1992

I. Case Summary

SAMPLE INFORMATION:

PEST Sample Numbers: 920201, 920202, 920204, 920207, 920209,
920210, 920211, 920212, 920217, 920223,
920224, 920226, 920228, 920230, 920232,
920233, 920234 and 920235
Concentration and Matrix: Low Level Water
Analysis: RAS Pesticides/PCBs
SOW: 2/88
Collection Date: February 12 and 13, 1992
Sample Receipt Date: February 13 and 14, 1992
Extraction Date: February 13 and 19, 1992
Analysis Date: March 7 and 8, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): 920235
Equipment Blanks (EB): 920232 and 920233
Background Samples (BG): None
Field Duplicates (D1): 920201 and 920212
(D2): 920207 and 920217

METHOD BLANKS AND ASSOCIATED SAMPLES:

PBLK2: 920228, 920230 and 920232
PBLK3: 920201, 920202, 920204, 920207, 920209,
920210, 920211, 920212, 920217, 920223,
920224, 920226, 920233, 920234, 920235,
920226MS and 920226MSD

TABLES:

- 1A: Analytical Results with Qualifications
- 1B: Data Qualifiers
- 2: Sample Quantitation Limits of Target Compound List (TCL) Analytes

ADDITIONAL COMMENTS:

This report was prepared according to the EPA document "Laboratory Data Validation Functional Guidelines For Evaluating Organic Analyses," April 11, 1985.

II. Validation Summary

	VOA		BNA		PEST	
	Acceptable/Comment		Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[]	[]	[]	[]	[Y]	[B]
GC/MS TUNE/GC PERFORMANCE	[]	[]	[]	[]	[Y]	[]
CALIBRATIONS	[]	[]	[]	[]	[N]	[A]
FIELD QC	[]	[]	[]	[]	[Y]	[]
LABORATORY BLANKS	[]	[]	[]	[]	[Y]	[]
SURROGATES	[]	[]	[]	[]	[Y]	[]
MATRIX SPIKE/DUPLICATES	[]	[]	[]	[]	[Y]	[]
INTERNAL STANDARDS	[]	[]	[]	[]	[N/A]	[]
COMPOUND IDENTIFICATION	[]	[]	[]	[]	[Y]	[]
COMPOUND QUANTITATION	[]	[]	[]	[]	[Y]	[]
SYSTEM PERFORMANCE	[]	[]	[]	[]	[Y]	[C]

N/A - Not Applicable

III. Validity and Comments

- A. A Percent Relative Standard Deviation (%RSD) exceeding the <10% QC limit was observed for 4,4'-DDT in the evaluation check for linearity on the confirmation column in the calibration performed March 7, 1992. It is the opinion of the reviewer that the data are not affected since no target analytes were detected in any of the samples.
- B. The 40 CFR 136 technical holding times were not exceeded for any of the samples analyzed.
- C. All results are considered valid and usable for all purposes. All quality control criteria have been met and are considered acceptable.

TABLE 1A*

Page 1 of 2

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Anh Do, ESAT/ICF Technology, Inc.

Date: May 13, 1992

**Analysis Type: Low Level Water Samples for
RAS Pesticides/PCBs**

Concentration in ug/L

[illegible][illegible]

*The requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.—Field Duplicate Pairs

FR-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

IS indicates that the data are acceptable both qualitatively and
by.

es that the compound is not detected above the concentration

tes results which fall below the Contract Required Quantitation
Results are considered estimates and usable for limited
es.

es are estimated and the data are valid for limited purposes. The
es are qualitatively acceptable.

ptive evidence of the presence of the material. The compound
fication is considered to be tentative. The data are usable for
d purposes.

es are rejected and data are invalid for all purposes.

TABLE 2
Sample Quantitation Limits

Case No.: LV2S27 Memo #02
 Site: Waste Disposal, Inc.
 Laboratory: Region IX, Las Vegas
 Reviewer: Anh Do
 ESAT/ICF Technology, Inc.
 Date: May 13, 1992

<u>Pesticides/PCBs</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
alpha-BHC	0.05		
beta-BHC	0.05		
delta-BHC	0.05		
gamma-BHC (Lindane)	0.05		
Heptachlor	0.05		
Aldrin	0.05		
Heptachlor epoxide	0.05		
Endosulfan I	0.05		
Dieldrin	0.1		
4,4'-DDE	0.1		
Endrin	0.1		
Endosulfan II	0.1		
4,4'-DDD	0.1		
Endosulfan sulfate	0.1		
4,4'-DDT	0.1		
Methoxychlor	0.5		
Endrin ketone	0.1		
alpha-Chlordane	0.5		
gamma-Chlordane	0.5		
Toxaphene	1		
Aroclor-1016	0.5		
Aroclor-1221	0.5		
Aroclor-1232	0.5		
Aroclor-1242	0.5		
Aroclor-1248	0.5		
Aroclor-1254	1		
Aroclor-1260	1		

Q - Qualifier
 C - Comment

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Pesticides</u>
All samples	1.00
Method Blanks	1.00

TPO: [] ACTION [X] FYI

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S27 Memo #02 LABORATORY Region IX. Las Vegas

SDG NO. 920228 DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE May 13. 1992

NO. OF SAMPLES 18 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	_____	<u>0</u>	_____
2. GC PERFORMANCE	_____	_____	<u>0</u>	_____
3. INITIAL CALIBRATIONS	_____	<u>*</u>	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>0</u>	_____
5. FIELD BLANKS	_____	_____	<u>0</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>0</u>	_____
7. SURROGATES	_____	_____	<u>0</u>	_____
8. MATRIX SPIKE/DUPLICATES	_____	_____	<u>0</u>	_____
9. REGIONAL QC	_____	_____	<u>F</u>	_____
10. INTERNAL STANDARDS	_____	_____	<u>F</u>	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>0</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>0</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>0</u>	_____
14. OVERALL ASSESSMENT	_____	_____	<u>0</u>	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

F - Not applicable.

TPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

B-32



ICF TECHNOLOGY INCORPORATED

MAY 14 1992

MEMORANDUM

DATE: May 5, 1992

SUBJECT: Review of Analytical Data

FROM: Margie D. Weiner *MDW*
ESAT Inorganic Data Reviewer
ICF Technology, Inc.

THROUGH: Jacob Silva *J. Silva*
Environmental Scientist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-6-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S27 Memo #04
SDG NO.:	920228
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Total Metals
SAMPLE NO.:	18 Water Samples (In Case Summary)
COLLECTION DATE:	February 11, 12 and 13, 1992
REVIEWER:	Roy Diaz ESAT/ICF Technology, Inc.
TELEPHONE NUMBER:	(415) 882-3057

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] FYI

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)

ESATQA9A-6240/RLV2S274.RPT

B-33

Data Validation Report

Case No.: LV2S27 Memo #04
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Roy Diaz, ESAT/ICF Technology, Inc.
Date: May 5, 1992

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: 920201, 920202, 920204, 920207, 920209,
920210, 920211, 920212, 920217, 920223,
920224, 920226, 920228, 920230, 920232,
920233, 920234 and 920235

COLLECTION DATE: February 11, 12 and 13, 1992
SAMPLE RECEIPT DATE: February 13 and 14, 1992

CONCENTRATION & MATRIX: 18 Low concentration ground water samples

FIELD QC: Field Blanks (FB): 920235
Equipment Blanks (EB): 920232 and 920233
Background Samples (BG): None
Duplicates (D1): 920201 and 920212
(D2): 920207 and 920217

LABORATORY QC: Matrix Spike: 920226
Duplicates: 920226
ICP Serial Dilution: 920226

ANALYSIS: RAS Total Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	February 20, 1992	February 21, 1992
GFAA: Arsenic	February 20, 1992	March 12, 1992
Lead	February 20, 1992	February 27, 1992
Selenium	February 20, 1992	March 11, 1992
Thallium	February 20, 1992	March 5, 1992
Mercury	February 25, 1992	February 25, 1992

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work for March 1990 and the EPA draft document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses" (October, 1989).

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	
2. Sample Holding Times	Yes	H
3. Calibration	No	E
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
5. ICP Interference Check Sample Analysis	No	F
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	B
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	G
10. GFAA QC Analysis	*No	C, D
a. Duplicate Injections		
b. Analytical Spikes		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	I

III. Validity and Comments

- A. The results reported in Table 1A for the following analytes are considered as estimates (J) and are usable for limited purposes only.

- All results above the Instrument Detection Limit but below the Contract Required Detection Limit (denoted with an "L" qualifier)

Results above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are considered usable for limited purposes because of accuracy problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Arsenic in all of the samples

The matrix spike recovery results for arsenic in QC sample number 920226 did not meet the 75-125% criteria for accuracy as listed below. The possible percent bias for arsenic is also presented below.

<u>Analyte</u>	<u>920226</u> <u>% Recovery</u>	<u>920226</u> <u>% Bias</u>
Arsenic	70.8	-29.2

Results above the IDL are considered quantitatively questionable. The results for arsenic in sample numbers 920201, 920202, 920204, 920210, 920212, 920223, 920226 and 920228 may be biased low. The detection limits reported for arsenic in sample numbers 920207, 920209, 920211, 920217, 920224, 920230, 920232, 920233, 920234 and 920235 may be biased low and false negatives may exist.

C. The following results are considered usable for limited purposes because of accuracy problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Selenium in sample numbers 920204, 920207, 920223, 920226 and 920228

The Method of Standard Addition (MSA) correlation coefficient for selenium in the samples listed above did not meet the ≥ 0.995 criteria for accuracy as shown below.

<u>Sample Number</u>	<u>Analyte</u>	<u>Correlation Coefficient</u>
920204	Selenium	0.9808
920207	Selenium	0.9720
920223	Selenium	0.9867
920226	Selenium	0.9809
920228	Selenium	0.9899

The results for selenium in sample numbers 920204, 920207, 920223, 920226 and 920228 are considered quantitatively questionable.

D. The following results are considered usable for limited purposes because of accuracy problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Arsenic in sample numbers 920202, 920204, 920211 and 920230
- Lead in sample numbers 920217, 920223 and 920224
- Selenium in sample number 920209
- Thallium in sample number 920228

Arsenic, lead, selenium and thallium were analyzed by the Graphite Furnace AA technique, which requires that a post-digest analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The analytical spike recovery results for lead, selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy as listed below. The possible percent bias for each analyte is also presented below.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	920202	80.5	-19.5
	920204	77.8	-22.2
	920211	80.0	-20.0
	920230	64.2	-35.8
Lead	920217	81.1	-18.9
	920223	80.5	-19.5
	920224	79.0	-21.0
Selenium	920209	65.5	-34.5
Thallium	920228	82.4	-17.6

The results for lead in sample numbers 920217 and 920223 may be biased low. The detection limits for arsenic in sample numbers 920202, 920204, 920211 and 920230, lead in sample number 920224, selenium in sample number 920209 and thallium in sample number 920228 may be biased low and false negatives may exist.

- E. The following results are considered usable for limited purposes because of calibration problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Mercury in all of the samples and the Lab Blank

An insufficient number of calibration standards were used in the analysis of the samples for mercury. No standards lower than 5.0 µg/L were analyzed in the calibration for the analysis of mercury by automated cold vapor technique. Method 245.2 CLP-M specifies the analysis of standards containing 0.2, 0.5, 1.0, 5.0, 10.0, 15.0 and 20.0 µg/L. The low standard used by the laboratory is 25 times higher than the IDL and the CRDL.

In addition, the percent recovery for the mercury CRA was calculated incorrectly. The CRA result was reported as 0.1 µg/L; however, the IDL and CRDL are reported as 0.2 µg/L. The correct percent recovery is zero.

Due to the above calibration inadequacy and the zero percent recovery for the CRA, the validity of the mercury results near the detection limit are quantitatively questionable.

- F. The following results are considered usable for limited purposes because of problems with the Interference Check Standard. The results are considered as estimates and are flagged "J" in Table 1A.

- Cadmium in sample numbers 920201, 920204, 920210, 920212, 920223, 920226 and 920228
- Zinc in sample numbers 920202, 920204, 920207, 920209, 920223, 920230 and 920234

The above results are considered quantitatively questionable. The true concentration for cadmium and zinc in the laboratory

Interference Check Sample solution (ICSA) was at a zero concentration. However, the Initial and Final analysis of solution A found concentrations of cadmium and zinc above the CRDL. When positive results are observed for elements which are not present in the ICS solutions then the possibility of false positives exists when comparable or higher levels of interferents exist in the sample.

<u>Analyte</u>	<u>ICSA True</u>	<u>ICSA Initial</u>	<u>ICSA Final</u>	<u>IDL</u>	<u>CRDL</u>
Cadmium	0	31	33	2.4	5.0
Zinc	0	52	52	13.0	20.0

The results for cadmium in sample numbers 920201, 920204, 920210, 920212, 920223, 920226 and 920228 and zinc in sample numbers 920202, 920204, 920207, 920209, 920223, 920230 and 920234 may be biased high.

- G. Relative Percent Difference (RPD) values were obtained for the following analytes in the analysis of field duplicate pair samples as shown below.

<u>Analyte</u>	920201 D1 920212 D1 <u>RPD</u>	920207 D2 920217 D2 <u>RPD</u>
Aluminum	39.8	37.6
Barium	37.6	34.4
Chromium	36.3	----
Cobalt	39.1	----
Copper	43.8	----
Iron	41.7	32.9
Lead	51.0	----
Manganese	38.8	----
Nickel	35.5	----
Potassium	23.8	----
Vanadium	37.3	----
Zinc	34.1	200

The analysis of field duplicate samples is a measure of both field and laboratory precision. The results, therefore, have more variability than laboratory duplicates ($\pm 20\%$ RPD criteria for precision) which only measures laboratory performance. The inconsistency of the results in the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.

- H. The 40 CFR 136 technical holding times were not exceeded for any of the samples. There were no holding time problems.
- I. All of the other results are considered valid and usable for all purposes. All QC parameters, other than those discussed above, have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 3

TABLE 1A

Case No.: LV2S27 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Roy Diaz, ESAT/ICF Technology, Inc.

Date: May 5, 1992

Analysis Type: Low Level Water Samples for
RAS Total Metals

Concentration in ug/L

Sample I.D.	920201 D1			920202			920204			920207 D2			920209			920210			920211		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	46700		G	5630			5750			923		G	50.0 U			30500			476		
Antimony	28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U		
Arsenic	12.7 J	B		2.3 L J	ABD		2.0 L J	ABD		1.3 U J	B		1.3 U J	B		15.6 J	B		1.3 U J	BD	
Barium	707		G	147 L J	A		114 L J	A		68.4 L J	AG		29.7 U			724			88.8 L J	A	
Beryllium	3.3 L J	A		1.3 L J	A		1.3 L J	A		1.1 L J	A		0.75 L J	A		2.3 L J	A		1.3 L J	A	
Cadmium	14.2 J	F		2.4 U			5.4 J	F		2.4 U			2.4 U			8.2 J	F		2.4 U		
Calcium	315000			218000			204000			220000			87300			238000			257000		
Chromium	81.6		G	13.8			16.5			3.0 U			3.0 U			41.6			4.9 L J	A	
Cobalt	50.7		G	9.0 U			9.0 U			9.0 U			9.0 U			36.3 L J	A		9.0 U		
Copper	87.1			7.7 L J	A		11.3 L J	A		3.7 U			3.7 U			85.8			7.3 L J	A	
Iron	70700		G	7990			8120			1320		G	5480			45400			1110		
Lead	26.8			2.4 L J	A		3.7			1.0 U			1.0 U			17.4			5.1		
Magnesium	112000			67500			64700			70500			58500			78100			69900		
Manganese	2090		G	227			177			144			208			4190			140		
Mercury	0.20 J	E		0.20 U J	E		0.20 U J	E		0.20 U J	E		0.20 U J	E		0.30 J	E		0.20 J	E	
Nickel	69.6		G	12.7 U			16.5 L J	A		12.7 U			12.7 U			36.4 L J	A		15.3 L J	A	
Potassium	16400		G	6060			6120			4620 L J	A		4260 L J	A		12300			11800		
Selenium	42.5			15.7			21.1 J	C		28.0 J	C		1.3 U J	D		21.1			37.8		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		
Sodium	163000			115000			128000			173000			126000			147000			152000		
Thallium	0.60 U			0.60 U			0.60 U			0.60 U			0.60 U			0.60 U			0.60 U		
Vanadium	126		G	16.8 L J	A		16.8 L J	A		8.6 U			8.6 U			84.4			8.6 U		
Zinc	206		G	25.8 J	F		34.4 J	F		25.8 J	FG		17.2 L J	AF		189			328		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 2 of 3

TABLE 1A

Case No.: LV2S27 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Roy Diaz, ESAT/ICF Technology, Inc.

Date: May 5, 1992

Analysis Type: Low Level Water Samples for
RAS Total Metals

Concentration in ug/L

Sample I.D.	920212 D1			920217 D2			920223			920224			920226			920228			920230		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	31200		G	1350		G	9390			50.0 U			21700			33500			272		
Antimony	28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U		
Arsenic	12.0	J	B	1.3 U	J	B	2.2 L	J	AB	1.3 U	J	B	9.9 L	J	AB	11.8	J	B	1.3 U	J	BD
Barium	483		G	96.8 L	J	AG	269			49.2 L	J	A	585			315			65.2 L	J	A
Beryllium	2.7 L	J	A	1.4 L	J	A	1.6 L	J	A	1.5 L	J	A	2.1 L	J	A	2.8 L	J	A	1.1 L	J	A
Cadmium	9.5	J	F	2.4 U			6.0	J	F	2.4 U			7.0	J	F	9.6	J	F	2.4 U		
Calcium	306000			235000			250000			288000			254000			285000			182000		
Chromium	56.5		G	3.0 U			15.2			5.5 L	J	A	33.4			55.1			4.1 L	J	A
Cobalt	34.1 L	J	A	9.0 U			9.0 U			9.0 U			33.7 L	J	A	29.8 L	J	A	9.0 U		
Copper	55.8		G	12.2 L	J	A	20.0 L	J	A	3.7 U			58.1			71.2			3.7 U		
Iron	46300		G	2270		G	11800			78.3 L	J	A	32800			46600			695		
Lead	15.9		G	1.2 L	J	AD	2.1 L	J	AD	1.0 U	J	D	17.8			13.7			1.0 L	J	A
Magnesium	104000			74400			75700			81300			80900			97600			50000		
Manganese	1410		G	162			21000			3.4 L	J	A	2640			1010			94.4		
Mercury	0.30	J	E	0.20	J	E	0.40	J	E	0.20	J	E	2.0	J	E	0.20	J	E	0.20 U	J	E
Nickel	48.6		G	12.7 U			21.5 L	J	A	12.7 U			35.6 L	J	A	54.1			14.5 L	J	A
Potassium	12900		G	5170			6450			5500			10200			12200			5170		
Selenium	45.7			25.2			22.8	J	B	43.6			33.7	J	C	26.5	J	C	23.6		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		
Sodium	158000			176000			137000			127000			151000			151000			92700		
Thallium	0.60 U			0.60 U			0.60 U			0.60 U			0.60 U			0.70 U	J	D	0.60 U		
Vanadium	86.4		G	8.6 U			37.0 L	J	A	8.6 U			60.3			94.2			8.6 U		
Zinc	146		G	13.0 U		G	51.6	J	F	13.0 U			103			155			17.2 L	J	AF

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 3 of 3

TABLE 1A

Case No.: LV2S27 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Roy Diaz, ESAT/ICF Technology, Inc.

Date: May 5, 1992

Analysis Type: Low Level Water Samples for
RAS Total Metals

Concentration in ug/L

Sample I.D.	920232 EB			920233 EB			920234			920235 FB			LAB BLANK			IDL			CRDL		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0			200		
Antimony	28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2			60.0		
Arsenic	1.3 U J B			1.3 U J B			1.3 U J B			1.3 U J B			1.3 U			1.3			10.0		
Barium	29.7 U			29.7 U			169 L J A			29.7 U			29.7 U			29.7			200		
Beryllium	0.67 U			0.67 U			0.70 L J A			0.67 U			0.67 U			0.67			5.0		
Cadmium	2.4 U			2.4 U			2.4 U			2.4 U			2.4 U			2.4			5.0		
Calcium	524 U			524 U			62300			524 U			524 U			524			5000		
Chromium	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0			10.0		
Cobalt	9.0 U			9.0 U			9.0 U			9.0 U			9.0 U			9.0			50.0		
Copper	3.7 U			3.7 U			15.4 L J A			3.7 U			3.7 U			3.7			25.0		
Iron	40.6 U			40.6 U			6410			40.6 U			40.6 U			40.6			100		
Lead	1.7 L J A			1.0 U			1.0 U			1.0 U			1.0 U			1.0			3.0		
Magnesium	607 U			607 U			17300			607 U			607 U			607			5000		
Manganese	2.4 U			2.4 U			40.7			2.4 U			2.4 U			2.4			15.0		
Mercury	0.20 U J E			0.20 U J E			0.20 U J E			0.20 U J E			0.20 U J E			0.20			0.20		
Nickel	12.7 U			12.7 U			12.7 U			12.7 U			12.7 U			12.7			40.0		
Potassium	744 U			744 U			3210 L J A			744 U			744 U			744			5000		
Selenium	1.3 U			1.3 U			1.6 L J A			1.3 U			1.3 U			1.3			5.0		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0			10.0		
Sodium	569 L J A			454 U			88100			454 U			454 U			454			5000		
Thallium	0.60 U			0.60 U			0.60 U			0.60 U			0.60 U			0.60			10.0		
Vanadium	8.6 U			8.6 U			8.6 U			8.6 U			8.6 U			8.6			50.0		
Zinc	13.0 U			13.0 U			34.4 J F			13.0 U			13.0 U			13.0			20.0		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 13

QUALITIES

NO QUALITY: The results are acceptable both qualitatively and quantitatively.

- 1. Indication of the presence of a substance is not detected above the concentration listed. (Usually the Instrument Detection Limit for waters and the Method Detection Limit for soils with a correction for percent solids).
- 2. Indication of the presence of a substance is not detected above the Instrument Detection Limit for waters or the Method Detection Limit for soils and the Contract Required Detection Limit. Results are considered estimates and are usable for limited purposes.
- 3. Results are not detected and are usable for limited purposes. The results are qualitatively acceptable.
- 4. Results are detected and are usable for any purposes.

TPO: [] ACTION [X] FYI

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S27 Memo #04 LABORATORY Region IX, Las Vegas

SDG NO. 920228 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE May 5, 1992

NO. OF SAMPLES 18 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	ICP	GFAA	Hg	Other
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>0</u>	_____
2. INITIAL CALIBRATIONS	<u>0</u>	<u>0</u>	<u>M</u>	_____
3. CONTINUING CALIBRATIONS	<u>0</u>	<u>0</u>	<u>0</u>	_____
4. FIELD BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	_____
5. LABORATORY BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	_____
6. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>X</u>			
7. LABORATORY CONTROL SAMPLE (LCS)	<u>0</u>	<u>0</u>	<u>0</u>	_____
8. DUPLICATE ANALYSIS	<u>0</u>	<u>0</u>	<u>0</u>	_____
9. MATRIX SPIKE	<u>0</u>	<u>M</u>	<u>0</u>	_____
10. METHOD OF STANDARD ADDITION (MSA)		<u>X</u>		
11. ICP SERIAL DILUTION	<u>0</u>			
12. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	_____
13. REGIONAL QC	<u>F</u>	<u>F</u>	<u>F</u>	_____
14. OVERALL ASSESSMENT	<u>X</u>	<u>M</u>	<u>M</u>	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

F - not applicable

AREAS OF CONCERN: The CRA standard for mercury was recalculated to a zero percent recovery. Insufficient number of calibration standards were used and no low level calibration standards for mercury were analyzed. These deficiencies indicate analytical uncertainty near the detection limit. Field duplicate pair D1 had a high RPD for Al, Ba, Cr, Co, Fe, Mn, Ni, K, V and Zn. Field duplicate pair D2 had a high RPD for Al, Ba, Fe and Zn.

B-4/3

B-4/H



ICF TECHNOLOGY INCORPORATED

APR 27 1992

MEMORANDUM

DATE: April 23, 1992

SUBJECT: Review of Analytical Data

FROM: Victoria Taylor
ESAT Senior Analytical Chemist
ICF Technology, Inc.

THROUGH: Jacob Silva
Environmental Scientist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE: Waste Disposal, Inc.
EPA SITE ID NO: C1
CASE/SAS NO.: LV2S27 Memo #05
SDG NO.: 920228D

LABORATORY: Region IX, Las Vegas
ANALYSIS: RAS Dissolved Metals

SAMPLE NO.: 920201D, 920202D, 920204D, 920207D, 920209D,
920210D, 920211D, 920212D, 920217D, 920223D,
920224D, 920226D, 920228D, 920230D, 920232D,
920233D, 920234D and 920235D

COLLECTION DATE: February 11, 12 and 13, 1992

REVIEWER: Jack D. Sheets
ESAT/ICF Technology, Inc.
TELEPHONE NUMBER: (415) 882-3061

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] FYI

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)

ESATQA9A-5995/JLV2S275.RPT

B-4/5

Data Validation Report

Case No.: LV2S27 Memo #05
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.
Date: April 23, 1992

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: 920201D, 920202D, 920204D, 920207D, 920209D,
920210D, 920211D, 920212D, 920217D, 920223D,
920224D, 920226D, 920228D, 920230D, 920232D,
920233D, 920234D and 920235D

COLLECTION DATE: February 11, 12 and 13, 1992
SAMPLE RECEIPT DATE: February 13 and 14, 1992

CONCENTRATION & MATRIX: 18 Low concentration water samples

FIELD QC: Field Blanks (FB): 920235D
Equipment Blanks (EB): 920232D and 920233D
Background Samples (BG): None
Duplicates (D1): 920201D and 920212D
(D2): 920207D and 920217D

LABORATORY QC: Matrix Spike: 920226D
Duplicates: 920226D
ICP Serial Dilution: 929026D

ANALYSIS: RAS Dissolved Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	February 26, 1992	February 27, 1992
GFAA: Arsenic	February 26, 1992	March 13, 1992
Lead	February 26, 1992	March 2 and 3, 1992
Selenium	February 26, 1992	March 9, 1992
Thallium	February 26, 1992	March 3 and 4, 1992
Mercury	February 28, 1992	February 28, 1992

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work for March 1990 and the EPA draft document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses" (October, 1989).

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	No	G,H
2. Sample Holding Times	Yes	I
3. Calibration	No	B,D
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	No	B
a. Laboratory Preparation Blank		
b. Field Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	Yes	
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	E
10. GFAA QC Analysis	No	C,F
a. Duplicate Injections		
b. Analytical Spikes		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	J

III. Validity and Comments

- A. The results reported in Table 1A for the following analytes are considered as estimates (J) and are usable for limited purposes only.

- All results above the Instrument Detection Limit but below the Contract Required Detection Limit (denoted with an "L" qualifier)

Results above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are considered usable for limited purposes because of blank contamination problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Mercury in sample numbers 920204D, 920209D, 920226D, 920228D and 920230D

The results reported for mercury in the samples listed above are >IDL and <10 times the concentrations of mercury in the equipment blank (920232D = 0.50 µg/L) and field blank (920235D = 0.30 µg/L). Laboratory, equipment and field blank results which were less than the CRDL were not used to determine contamination problems.

An insufficient number of calibration standards were used in the analysis of the samples for mercury. No standards lower than 5.0 µg/L were analyzed in the calibration for the analysis of mercury by automated cold vapor technique. Method 245.2 CLP-M specifies the analysis of standards containing 0.2, 0.5, 1.0, 5.0, 10.0, 15.0, and 20.0 µg/L, in addition to a blank. The laboratory used standards containing 5.0, 10.0, and 15.0 µg/L plus a blank for calibration. The 5.0 µg/L low standard used by the laboratory is 25 times higher than the IDL and the CRDL. The effect of this calibration inadequacy on the data is unknown.

C. The following results are considered usable for limited purposes because of accuracy problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Lead in samples 920201D, 920202D, 920204D and 920207D
- Selenium in samples 920209D and 920233D
- Thallium in samples 920201D, 920202D, 920207D, 920211D, 920212D, 920217D and 920226D

Lead, selenium and thallium were analyzed by the Graphite Furnace Atomic Absorption (GFAA) technique, which requires that a post-digest analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The post-digestion spike recovery results for lead, selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy as listed below. The possible percent bias for each analyte is also presented below.

<u>Analyte</u>	<u>Sample #</u>	<u>% Recovery</u>	<u>% Bias</u>
Lead	920201D	83.7	-16.3
	920202D	79.5	-20.5
	920204D	77.0	-23.0
	920207D	74.7	-25.3
Selenium	920209D	68.0	-32.0
	920233D	83.0	-17.0
Thallium	920201D	81.5	-18.5
	920202D	82.0	-18.0
	920207D	80.5	-19.5
	920211D	82.0	-18.0
	920212D	82.5	-17.5
	920217D	81.5	-18.5
	920226D	82.5	-17.5

The post-digestion spike recovery results for lead, selenium and thallium in the samples listed above show a severe analytical deficiency. The results reported may be biased low and false negatives may exist.

- D. The following results are considered usable for limited purposes because of calibration problems. The results are considered as estimates and are flagged "J" in Table 1A.

- Thallium in samples 920209D and 920210D

The results reported for thallium in samples 920209D and 920210D are considered quantitatively questionable due to problems encountered in the analysis of the final Continuing Calibration Verification (CCV) solution.

According to the 3/90 CLP Statement of Work (SOW), each CCV analyzed must reflect the conditions of analysis of all associated analytical samples (the preceding 10 analytical samples or the preceding analytical samples up to the previous CCV). Also, if the deviation of the CCV is greater than the control limits of 90-110%, the analysis must be stopped, the problem corrected, the instrument must be recalibrated, the calibration verified and the reanalysis of preceding 10 analytical samples or all samples analyzed since the last compliant CCV must be performed for the analytes affected. For thallium, this protocol was not followed. Due to problems with the graphite furnace tube, an 85% recovery was obtained in the analysis of the final CCV for thallium. The laboratory replaced the graphite tube platform, changing the conditions of analysis for the CCV but not for samples 920209D, 920210D and their analytical spikes. After installing a new platform and correcting the problem, the laboratory immediately analyzed both the final CCV and CCB instead of complying with the SOW. The instrument should have been recalibrated, the calibration verified and samples 920209D, 920210D and their analytical spikes reanalyzed.

- E. A 200% Relative Percent Difference (RPD) was obtained for zinc in the analysis of field duplicate pair samples 920207D and 920217D. Zinc in sample 920207D was not detected but was present in sample 920217D at a concentration of 23.1 $\mu\text{g/L}$. The analysis of field duplicate samples is a measure of both field and laboratory precision. The results, therefore, have more variability than laboratory duplicates ($\pm 20\%$ RPD criteria for precision) which only measures laboratory performance. The inconsistency of the results in the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.
- F. Results for GFAA analytical spikes were incorrectly calculated. Sample results < IDL should be treated as "0". The laboratory calculated results < IDL as real numbers with an effect of increasing the percent recovery for negative results or decreasing the percent recovery for results greater than zero but < IDL. For this report, all results were recalculated. Comments were made using the recalculated results.

- G. The chain of custody forms or laboratory data do not indicate how or when the samples were filtered and preserved. The chain of custody forms also do not indicate the concentration or type of water sampled.
- H. The laboratory did not analyze an analytical spike for any of the GFAA analytes in the duplicate analysis of sample 920226D. This omission is not expected to effect the analytical results.
- I. The 40 CFR 136 technical holding times were not exceeded for any of the samples. There were no holding time problems.
- J. All of the other results are considered valid and usable for all purposes. All QC parameters, other than those discussed above, have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 3

TABLE 1A

Case No.: LV2S27 Memo #05

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: April 23, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Date Collected	2/12/92			2/13/92			2/13/92			2/13/92			2/13/92			2/12/92			2/11/92		
Sample Location	WD920201D			WD920202D			WD920204D			WD920207D			WD920209D			WD920210D			WD920211D		
Sample I.D.	920201D D1			920202D			920204D			920207D D2			920209D			920210D			920211D		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U		
Antimony	28.2 U			29.3 L J A			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U		
Arsenic	1.3 U			1.3 U			1.3 U			1.3 U			1.3 U			1.3 U			1.3 U		
Barium	53.6 L J A			51.0 L J A			46.4 L J A			46.6 L J A			31.7 L J A			47.6 L J A			54.1 L J A		
Beryllium	1.3 L J A			1.1 L J A			0.94 L J A			1.1 L J A			0.69 L J A			1.0 L J A			1.1 L J A		
Cadmium	2.4 U			2.4 U			2.4 U			2.4 U			2.4 U			2.4 U			2.4 U		
Calcium	313000			234000			207000			238000			89800			227000			274000		
Chromium	3.0 U			8.5 L J A			6.1 L J A			3.0 U			3.0 U			3.0 U			3.0 U		
Cobalt	9.0 U			9.0 U			9.0 U			9.0 U			9.0 U			9.0 U			9.0 U		
Copper	3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U		
Iron	40.6 U			40.6 U			40.6 U			40.6 U			1820			40.6 U			40.6 U		
Lead	1.0 L J AC			1.0 U J			1.0 U J C			1.3 L J AC			1.2 L J A			6.0			1.0 U		
Magnesium	93900			69200			62800			73500			58900			64600			73400		
Manganese	2.4 U			2.4 U			2.4 U			9.3 L J A			199			2130			6.8 L J A		
Mercury	0.20 U			0.20 U			0.20 J B			0.20 U			0.20 J B			0.20 U			0.20 U		
Nickel	12.7 U			12.9 L J A			12.7 U			12.7 U			12.7 U			12.7 U			12.7 U		
Potassium	6030			5480			4450 L J A			4800 L J A			4930 L J A			5160			11000		
Selenium	33.2			14.1			16.1			19.1			1.3 U J C			11.9			37.8		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		
Sodium	163000			120000			130000			176000			126000			137000			157000		
Thallium	0.60 U J C			0.60 U J C			0.60 U			0.60 U J C			0.60 U J D			0.60 U J D			0.60 U J C		
Vanadium	8.6 U			8.6 U			8.6 U			8.6 U			8.6 U			8.6 U			8.6 U		
Zinc	15.4 L J A			30.7			15.4 L J A			13.0 U E			13.0 U			15.4 L J A			184		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

Case No.: 10127 (10127)

Site: to be disposed of

Lab: Ion Inc., L. A.

Reviewer: G. B. [unclear] / ICF Technology, Inc.

Date: April 23, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Date Collected	2/12/92			2/13/92			2/12/92			2/12/92			2/12/92			2/11/92			2/11/92		
Sample Location	WD920212D			WD920217D			WD920223D			WD920224D			WD920226D			WD920228D			WD920230D		
Sample I.D.	920212D D1			920217D D2			920223D			920224D			920226D			920228D			920230D		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U		
Antimony	28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			28.2 U			29.5 L J		A
Arsenic	1.3 U			1.3 U			1.3 U			1.3 U			1.3 U			1.3 U			1.3 U		
Barium	52.0 L J		A	46.8 L J		A	49.4 L J		A	49.8 L J		A	55.5 L J		A	57.2 L J		A	60.1 L J		A
Beryllium	1.4 L J		A	1.1 L J		A	1.2 L J		A	1.1 L J		A	1.1 L J		A	1.3 L J		A	0.93 L J		A
Cadmium	2.4 U			2.4 U			2.4 U			2.4 U			2.4 U			2.4 U			2.4 U		
Calcium	304000			241000			273000			264000			257000			287000			188000		
Chromium	3.0 U			3.0 U			3.6 L J		A	3.0 U			3.0 U			3.0 U			3.1 L J		A
Cobalt	9.0 U			9.0 U			9.0 U			9.0 U			9.0 U			9.0 U			9.0 U		
Copper	3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U			3.7 U		
Iron	40.6 U			40.6 U			40.6 U			40.6 U			40.6 U			40.6 U			40.6 U		
Lead	1.0 U			1.0 U			1.0 U			1.3 L J		A	1.2 L J		A	1.0 U			1.0 U		
Magnesium	91200			74900			77800			75300			75800			86200			50000		
Manganese	2.4 U			4.8 L J		A	36.7			2.4 U			12.9 L J		A	2.6 L J		A	2.4 U		
Mercury	0.20 U			0.20 U			0.20 U			0.20 U			0.30 J		B	0.20 J		B	0.20 J		B
Nickel	12.7 U			12.7 U			12.7 U			12.7 U			12.7 U			12.7 U			12.7 U		
Potassium	5460			4600 L J		A	5270			4120 L J		A	5920			5990			5170		
Selenium	37.0			21.7			27.0			27.4			26.5			20.6			21.8		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		
Sodium	158000			181000			136000			134000			156000			155000			98500		
Thallium	0.60 U J		C	0.60 U J		C	0.60 U			0.60 U			0.60 U J		C	0.60 U			0.60 U		
Vanadium	8.6 U			8.6 U			8.6 U			8.6 U			8.6 U			8.6 U			8.6 U		
Zinc	15.4 L J		A	23.1		E	23.1			15.4 L J		A	30.7			15.4 L J		A	13.0 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 3 of 3

TABLE 1A

Case No.: LV2S27 Memo #05

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: April 23, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Date Collected	2/11/92	2/13/92	2/13/92	2/12/92											
Sample Location	WD920232D	WD920233D	WD920234D	WD920235D											
Sample I.D.	920232D EB	920233D EB	920234D	920235D FB	LAB BLANK										
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	50.0 U			50.0 U			50.0 U			50.0 U			50.0		
Antimony	28.2 U			28.2 U			28.2 U			28.2 U			28.2		
Arsenic	1.3 U			1.3 U			1.3 U			1.3 U			1.3		
Barium	29.7 U			29.7 U			148 L J A			29.7 U			29.7		
Beryllium	0.67 U			0.67 U			0.67 U			0.67 U			0.67		
Cadmium	2.4 U			2.4 U			2.4 U			2.4 U			2.4		
Calcium	776 L J A			524 U			62500			524 U			524		
Chromium	3.0 U			3.0 U			3.0 U			3.0 U			3.0		
Cobalt	9.0 U			9.0 U			9.0 U			9.0 U			9.0		
Copper	3.7 U			3.7 U			3.7 U			3.7 U			3.7		
Iron	40.6 U			40.6 U			52.5 L J A			40.6 U			40.6		
Lead	2.4 L J A			1.0 U			1.0 U			1.8 L J A			1.0		
Magnesium	607 U			607 U			17300			607 U			607		
Manganese	2.4 U			2.4 U			35.4			2.4 U			2.4		
Mercury	0.50		B	0.20 U			0.20 U			0.30		B	0.20		
Nickel	12.7 U			12.7 U			12.7 U			12.7 U			12.7		
Potassium	744 U			744 U			3170 L J A			744 U			744		
Selenium	1.3 U			1.3 U J C			1.3 U			1.3 U			1.3		
Silver	4.0 U			4.0 U			4.0 U			4.0 U			4.0		
Sodium	654 L J A			454 U			89400			454 U			454		
Thallium	0.60 U			0.60 U			0.60 U			0.60 U			0.60		
Vanadium	8.6 U			8.6 U			8.6 U			8.6 U			8.6		
Zinc	13.0 U			15.4 L J A			15.4 L J A			13.0 U			13.0		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 1B
DATA QUALIFIERS

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the parameter is not detected above the concentration listed. (Usually the Instrument Detection Limit for waters and the Method Detection Limit for soils with a correction for percent solids).
- L Indicates results which fall between the Instrument Detection Limit for waters or the Method Detection Limit for soils and the Contract Required Detection Limit. Results are considered estimates and are usable for limited purposes.
- J Results are considered estimates and are usable for limited purposes. The results are qualitatively acceptable.
- R Results are rejected and are unusable for any purposes.

TPO: [] ACTION [X] FYI

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S27 Memo #05 LABORATORY Region IX, Las Vegas
SDG NO. 920228D DATA USER _____
SOW 3/90 REVIEW COMPLETION DATE April 23, 1992
NO. OF SAMPLES 18 WATER _____ SOIL _____ OTHER _____
REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	ICP	AA	Hg	Other
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>0</u>	_____
2. INITIAL CALIBRATIONS	<u>0</u>	<u>0</u>	<u>M</u>	_____
3. CONTINUING CALIBRATIONS	<u>0</u>	<u>0</u>	<u>0</u>	_____
4. FIELD AND EQUIPMENT BLANKS	<u>0</u>	<u>0</u>	<u>M</u>	_____
5. LABORATORY BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	_____
6. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>0</u>			
7. LABORATORY CONTROL SAMPLE (LCS)	<u>0</u>	<u>0</u>	<u>F</u>	_____
8. LABORATORY DUPLICATE ANALYSIS	<u>0</u>	<u>0</u>	<u>0</u>	_____
9. MATRIX SPIKE ANALYSIS	<u>0</u>	<u>M</u>	<u>0</u>	_____
10. METHOD OF STANDARD ADDITION (MSA)		<u>F</u>		
11. ICP SERIAL DILUTION	<u>0</u>			
12. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	_____
13. OVERALL ASSESSMENT	<u>0</u>	<u>M</u>	<u>M</u>	_____

O - No problems or minor problems that do not affect data usability.
X - No more than about 5% of the data points are qualified as either estimated or unusable.
M - More than about 5% of the data points are qualified as estimated.
Z - More than about 5% of the data points are qualified as unusable.
F - Not applicable.

TPO ACTION ITEMS: None.

AREAS OF CONCERN: Insufficient number of Hg calibration standards, low analytical spike recoveries for GFAA analytes, and incorrect calculation of GFAA spike recoveries. A high CRDL (150%) percent recovery was obtained for mercury. While there are no criteria established for CRDL recovery, a high recovery indicates analytical uncertainty near the detection limit and a possible positive bias.

B-55

B-56

APPENDIX C
DATA VALIDATION REPORTS - MAY



ICF TECHNOLOGY INCORPORATED

JUL 17 1992

MEMORANDUM

DATE: July 16, 1992

SUBJECT: Review of Analytical Data

FROM: Carolyn Studeny *CS*
ESAT Senior Organic Data Reviewer
ICF Technology, Inc.

THROUGH: Roseanne Sakamoto *RS*
Environmental Protection Specialist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

TO: Kathryn Lawrence
Remedial Project Manager
Enforcement Program Section (H-7-2)

Attached are comments resulting from Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	18134 Memo #3
SDG NO.:	YK973
LABORATORY:	IT Corporation-Cerritos
ANALYSIS:	RAS Volatiles, RAS Semivolatiles and RAS Pesticides/PCBs
SAMPLE NO.:	16 Water Samples (See Case Summary)
COLLECTION DATE:	May 12 through 13, 1992
REVIEWER:	Margaret L. May ESAT/ICF Technology, Inc.
TELEPHONE NUMBER:	(415) 882-3174

If there are any questions, please contact the reviewer.

Attachment

TPO: [] For Action [X] For Attention [] FYI

cc: Edward Kantor, EMSL-LV, QAD
Steve Remaley

Data Validation Report

Case No.: 18134 Memo #3
Site: Waste Disposal, Inc.
Laboratory: IT Corporation-Cerritos
Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.
Date: July 16, 1992

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers: YK973 through YK976 and YK978 through YK989
BNA Sample Numbers: YK973 through YK976 and YK978 through YK988
PEST Sample Numbers: YK973 through YK976 and YK978 through YK988
Concentration and Matrix: Low Level Water
Analysis: RAS Volatiles, RAS Semivolatiles
and RAS Pesticides/PCBs
SOW: 3/90
Collection Date: May 12 through 13, 1992
Sample Receipt Date: May 14 through 15, 1992
Extraction Date: May 14 through June 8, 1992
Analysis Date: May 14 through June 18, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): YK989
Equipment Blanks (EB): YK987 and YK988
Background Samples (BG): None
Field Duplicates (D1): YK976/YK986
(D2): YK973/YK985

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBK1: YK973, YK980 through YK983, YK985, YK987,
YK987MS and YK987MSD
VBK2: YK974, YK975, YK976, YK978, YK979, YK984,
YK986, YK988 and YK989
SBLK1: YK973, YK980 through YK983, YK985, YK987,
YK983MS and YK983MSD
SBLK2: YK974, YK975, YK976, YK979, YK984, YK986 and
YK988
SBLK3: YK978
PBLK1: YK973 through YK976 and YK978 through YK988
PBLK2: YK983MS and YK983MSD

TABLES:

- 1A: Analytical Results with Qualifications
- 1B: Data Qualifiers
- 1C: Tentatively Identified Compounds
- 2: Sample Quantitation Limits of Target Compound
List (TCL) Analytes
- 3: Pesticides: Sample Extraction Dates

MS - Matrix Spike ; Matrix Spike Duplicate

C-2

TPO ATTENTION:

The quantitation limits for all pesticide/PCB target analytes were qualified in all samples due to holding time problems.

ADDITIONAL COMMENTS:

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision) and the EPA document, "Data Validation Functional Guidelines for Evaluating Organic Analyses," April 11, 1985.

II. Validation Summary

	VOA		BNA		PEST	
	Acceptable/Comment		Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[Y]	[C]	[Y]	[C]	[N]	[C]
GC/MS TUNE/GC PERFORMANCE	[Y]	[]	[Y]	[]	[Y]	[]
CALIBRATIONS	[Y]	[]	[Y]	[]	[Y]	[]
FIELD QC	[N]	[B]	[N]	[B]	[Y]	[]
LABORATORY BLANKS	[N]	[B]	[N]	[B]	[Y]	[]
SURROGATES	[Y]	[]	[Y]	[]	[Y]	[D]
MATRIX SPIKE/DUPLICATES	[Y]	[]	[Y]	[]	[Y]	[]
INTERNAL STANDARDS	[Y]	[]	[Y]	[]	[N/A]	[]
COMPOUND IDENTIFICATION	[Y]	[]	[Y]	[]	[Y]	[]
COMPOUND QUANTITATION	[Y]	[A]	[Y]	[A]	[Y]	[]
SYSTEM PERFORMANCE	[Y]	[E]	[Y]	[E]	[Y]	[E]

N/A - Not Applicable

III. Validity and Comments

- A. The results reported in Table 1A for the following analytes are considered estimates (J) and usable for limited purposes only:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable but quantitatively unreliable due to the uncertainty in analytical precision near the limit of detection.

- B. Due to blank contamination problems, the results reported in Table 1A for the following analytes are considered as estimates (J) and usable for limited purposes only:

- Methylene chloride in sample numbers YK973 through YK976, YK979 through YK983, YK985 and YK986
- Acetone in sample numbers YK975, YK982, YK983 and YK985
- Chloroform in sample numbers YK976, YK979, YK984 and YK986
- Di-n-Butylphthalate in sample numbers YK976, YK979 and YK981
- Butylbenzylphthalate in sample numbers YK974, YK984 and YK985
- bis(2-Ethylhexyl)phthalate in sample numbers YK973, YK974, YK975, YK979, YK981, YK983, YK984 and YK985

Methylene chloride was found in method blanks VBLK1 and VBLK2, field blank sample number YK989 and equipment blank sample numbers YK987 and YK988. Acetone was found in method blank VBLK1, field blank sample number YK989 and equipment blank sample numbers YK987 and YK988. Chloroform was found in field blank sample number YK989 (see Table 1A for concentrations).

Di-n-Butylphthalate and bis(2-ethylhexyl)phthalate were found in method blank SBLK2 and equipment blank sample numbers YK987 and YK988. Butylbenzylphthalate was found in equipment blank sample numbers YK987 and YK988 (see Table 1A for concentrations).

The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased where appropriate, according to the blank qualification rules.

- C. Due to holding time problems, the quantitation limits for the following analytes are considered estimates (J) and usable for limited purposes only (see Table 2).

- All pesticide/PCB target analytes in all samples

The 7 day 40 CFR 136 technical holding time for extraction of the pesticide/PCB fraction was exceeded by 19 and 20 days in all samples (see Table 3). The quantitation limits for the analytes listed above are questionable and false negatives may exist.

The holding time for extraction of the BNA fraction was also exceeded in sample number YK978. Sample number YK978 was collected on May 13, 1992 and extracted for semivolatiles 9 days later on May 22, 1992. This exceeds the 7 day 40 CFR 136 technical holding time for extraction by 2 days. This deviation, however, is not expected to affect the quality of the results.

The 40 CFR 136 technical holding times were not exceeded for any of the other samples analyzed.

- D. Recoveries of 54%, 58% and 53% were observed for the pesticide surrogate, decachlorobiphenyl, in sample numbers YK978, YK980 and YK982, respectively. Although these recoveries fall below the 60-150% advisory QC limits, no adverse effect on the quality of the data is expected.
- E. All other results are considered valid and usable for all purposes. All other quality control criteria have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 6

TABLE 1A*

Case No.: 18134 Memo #3

Site: Waste Disposal, Inc.

Lab.: IT Corporation-Cerritos

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: July 16, 1992

Analysis Type: Low Level Water Samples for
RAS Volatiles

Concentration in ug/L

Sample Location Sample I.D.	YK973 D2			YK974			YK975			YK976 D1			YK978			YK979			YK980		
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Methylene chloride	10 U	J	B	10 U	J	B	10 U	J	B	10 U	J	B	10 U			10 U	J	B	10 U	J	B
Acetone	10 U			10 U			10 U	J	B	10 U			10 U			10 U			10 U		
Carbon disulfide	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Chloroform	10 U			10 U			10 U			10 U	J	B	10 U			13 U	J	B	10 U		
Bromodichloromethane	10 U			10 U			10 U			10 U			10 U			1 L	J	A	10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			8 L	J	A	10 U		
Trichloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		

Sample Location Sample I.D.	YK981			YK982			YK983			YK984			YK985 D2			YK986 D1			YK987 EB		
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Methylene chloride	10 U	J	B	10 U	J	B	10 U	J	B	10 U			10 U	J	B	10 U	J	B	1 L	J	A
Acetone	10 U			10 U	J	B	10 U	J	B	10 U			10 U	J	B	10 U			5 L	J	A
Carbon disulfide	10 U			10 U			10 U			10 U			10 U			1 L	J	A	10 U		
Chloroform	10 U			10 U			10 U			10 U	J	B	10 U			10 U	J	B	10 U		
Bromodichloromethane	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Trichloroethene	10 U			10 U			7 L	J	A	10 U			10 U			10 U			10 U		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1A^a

Page 2 of 6

Site: Waste Disposal, Inc.

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Analysis Type: Low Level Water Samples for
RAS Volatiles

Concentration in ug/L

Sample Location Sample I.D.	YK988 EB			YK989 FB			METHOD BLANK VBLK1			METHOD BLANK VBLK2			CRQL								
Compound - Volatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Methylene chloride	2	L	J A	2	L	J A	2	L	J A	2	L	J A	10								
Acetone	5	L	J A	14			7	L	J A	10	U		10								
Carbon disulfide	10	U		10	U		10	U		10	U		10								
Chloroform	10	U		2	L	J A	10	U		10	U		10								
Bromodichloromethane	10	U		10	U		10	U		10	U		10								
Tetrachloroethene	10	U		10	U		10	U		10	U		10								
Trichloroethene	10	U		10	U		10	U		10	U		10								

[illegible]

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

D1, D2, etc.—Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

NA-Not Analyzed

ANALYTICAL RESULTS

Page 3 of 6

TABLE 1A*

Case No.: 18134 Memo #3

Site: Waste Disposal, Inc.

Lab.: IT Corporation-Cerritos

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: July 16, 1992

Analysis Type: Low Level Water Samples for
RAS Semivolatiles

Concentration in ug/L

Sample Location Sample I.D.	YK973 D2			YK974			YK975			YK976 D1			YK978			YK979			YK980		
Compound - Semivolatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Diethylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Di-n-Butylphthalate	10 U			10 U			10 U			10 U J B			10 U			10 U J B			10 U		
Butylbenzylphthalate	10 U			10 U J B			10 U			10 U			10 U			10 U			10 U		
bis(2-Ethylhexyl)phthalate	10 U J B			10 U J B			10 U J B			10 U			10 U			10 U J B			10 U		
Sample Location Sample I.D.	YK981			YK982			YK983			YK984			YK985 D2			YK986 D1			YK987 EB		
Compound - Semivolatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Diethylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			0.8 L J A		
Di-n-Butylphthalate	10 U J B			10 U			10 U			10 U			10 U			10 U			1 L J A		
Butylbenzylphthalate	10 U			10 U			10 U			10 U J B			10 U J B			10 U			2 L J A		
bis(2-Ethylhexyl)phthalate	10 U J B			10 U			10 U J B			10 U J B			10 U J B			10 U			0.7 L J A		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

Page 4 of 6

TABLE 1A*

Case No.: 18134 Memo #3

Site: Waste Disposal, Inc.

Lab.: IT Corporation-Cerritos

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: July 16, 1992

Analysis Type: Low Level Water Samples for
RAS Semivolatiles

Concentration in ug/L

Sample Location Sample I.D.	YK988 EB			METHOD BLANK SBLK1			METHOD BLANK SBLK2			METHOD BLANK SBLK3			CRQL					
Compound - Semivolatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Diethylphthalate	10 U			10 U			10 U			10 U			10					
Di-n-Butylphthalate	1 L J A			10 U			0.9 L J A			10 U			10					
Butylbenzylphthalate	2 L J A			10 U			10 U			10 U			10					
bis(2-Ethylhexyl)phthalate	16			10 U			0.8 L J A			10 U			10					

Sample Location Sample I.D.																		
Compound - Semivolatiles	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

Page 5 of 6

TABLE 1A*

Case No.: 18134 Memo #3

Site: Waste Disposal, Inc.

Lab.: IT Corporation-Cerritos

Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.

Date: July 16, 1992

Analysis Type: Low Level Water Samples for
RAS Pesticides/PCBs

Concentration in ug/L

Sample Location Sample I.D.	YK973 D2			YK974			YK975			YK976 D1			YK978			YK979			YK980		
Compound - Pesticides/PCBs	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aroclor 1260	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	J	C

Sample Location Sample I.D.	YK981			YK982			YK983			YK984			YK985 D2			YK986 D1			YK987 EB		
Compound - Pesticides/PCBs	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aroclor 1260	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	U	J C	1	U	J C

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. The compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 1C
Detected Tentatively Identified Compounds (TICs)

Case No.: 18134 Memo #3
 Site: Waste Disposal, Inc.
 Laboratory: IT Corporation-Cerritos
 Reviewer: Margaret L. May
 ESAT/ICF Technology, Inc.
 Date: July 16, 1992

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating* (Remarks)</u>
YK973	None found	VOA			
	None found	BNA			
YK974	None found	VOA			
	None found	BNA			
YK975	None found	VOA			
	None found	BNA			
YK976	None found	VOA			
	None found	BNA			
YK978	None found	VOA			
	Unknown	BNA	10.32	3 J	
	Cyclohexanediol	BNA	10.85	3 J	B
	Unknown	BNA	12.22	4 J	
	Fluoronitrophenol	BNA	12.52	6 J	
	Unknown	BNA	13.65	48 J	C
	Unknown	BNA	15.29	2 J	
	Unknown	BNA	15.45	2 J	
YK979	None found	VOA			
	None found	BNA			
YK980	Unknown	VOA	8.35	22 J	
	Unknown	BNA	11.20	16 J	
	Unknown	BNA	22.29	6 J	
	Unknown	BNA	23.84	4 J	
	Unknown hydrocarbon	BNA	23.95	2 J	
	Unknown hydrocarbon	BNA	24.67	2 J	
	Unknown hydrocarbon	BNA	25.37	2 J	
	Unknown hydrocarbon	BNA	26.79	2 J	
	Unknown hydrocarbon	BNA	27.64	2 J	

J (estimated): Value is considered usable for limited purposes.

*Rating codes--probability that identification is correct:

A - High

B - Moderate

C - Low

TABLE 1C
(continued)

Sample Number	Compound	Fraction	Retention Time, min.	Concentration (ug/L)	Rating* (Remarks)
YK981	Unknown	VOA	8.13	89 J	
	Unknown	BNA	22.29	7 J	
	Unknown	BNA	23.72	4 J	
	Unknown	BNA	23.84	6 J	
	Unknown hydrocarbon	BNA	23.94	4 J	
	Unknown hydrocarbon	BNA	24.67	3 J	
	Unknown hydrocarbon	BNA	25.37	2 J	
	Unknown hydrocarbon	BNA	26.04	2 J	
	Unknown hydrocarbon	BNA	27.64	2 J	
YK982	None found	VOA			
	Unknown	BNA	11.20	4 J	
YK983	None found	VOA			
	Unknown	BNA	11.25	23 J	
YK984	None found	VOA			
	Unknown	BNA	22.30	2 J	
	Unknown	BNA	23.84	4 J	
	Unknown hydrocarbon	BNA	26.79	2 J	
YK985	None found	VOA			
	None found	BNA			
YK986	None found	VOA			
	None found	BNA			
YK987	None found	VOA			
	Unknown	BNA	22.29	8 J	
	Unknown	BNA	23.84	6 J	
	Unknown hydrocarbon	BNA	23.95	2 J	
	Unknown hydrocarbon	BNA	24.67	3 J	
	Unknown hydrocarbon	BNA	25.37	3 J	
	Unknown hydrocarbon	BNA	26.04	2 J	
	Unknown hydrocarbon	BNA	26.79	4 J	
	Unknown hydrocarbon	BNA	27.64	2 J	
YK988	None found	VOA			
	None found	BNA			
YK989	None found	VOA			
	Not analyzed	BNA			

J (estimated): Value is considered usable for limited purposes.

*Rating codes--probability that identification is correct:

A - High

B - Moderate

C - Low

TABLE 2
Sample Quantitation Limits

Case No.: 18134 Memo #3
Site: Waste Disposal, Inc.
Laboratory: IT Corporation-Cerritos
Reviewer: Margaret L. May
ESAT/ICF Technology, Inc.
Date: July 16, 1992

<u>Volatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Chloromethane	10		
Bromomethane	10		
Vinyl chloride	10		
Chloroethane	10		
Methylene chloride	10		
Acetone	10		
Carbon disulfide	10		
1,1-Dichloroethene	10		
1,1-Dichloroethane	10		
1,2-Dichloroethene (total)	10		
Chloroform	10		
1,2-Dichloroethane	10		
2-Butanone	10		
1,1,1-Trichloroethane	10		
Carbon tetrachloride	10		
Bromodichloromethane	10		
1,2-Dichloropropane	10		
1,1,2,2-Tetrachloroethane	10		
1,2-Dichloropropane	10		
trans-1,3-Dichloropropene	10		
Trichloroethene	10		
Dibromochloromethane	10		
1,1,2-Trichloroethane	10		
Benzene	10		
cis-1,3-Dichloropropene	10		
Bromoform	10		
2-Hexanone	10		
4-Methyl-2-pentanone	10		
Tetrachloroethene	10		
Toluene	10		
Chlorobenzene	10		
Ethylbenzene	10		
Styrene	10		
Total Xylenes	10		

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

<u>Semivolatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Phenol	10		
bis(2-Chloroethyl)ether	10		
2-Chlorophenol	10		
1,3-Dichlorobenzene	10		
1,4-Dichlorobenzene	10		
1,2-Dichlorobenzene	10		
2-Methylphenol	10		
2,2'-oxybis(1-Chloropropane)	10		
4-Methylphenol	10		
N-Nitroso-di-N-propylamine	10		
Hexachloroethane	10		
Nitrobenzene	10		
Isophorone	10		
2-Nitrophenol	10		
2,4-Dimethylphenol	10		
bis(2-Chloroethoxy)methane	10		
2,4-Dichlorophenol	10		
1,2,4-Trichlorobenzene	10		
Naphthalene	10		
4-Chloroaniline	10		
Hexachlorobutadiene	10		
4-Chloro-3-methylphenol	10		
2-Methylnaphthalene	10		
Hexachlorocyclopentadiene	10		
2,4,6-Trichlorophenol	10		
2,4,5-Trichlorophenol	25		
2-Chloronaphthalene	10		
2-Nitroaniline	25		
Dimethylphthalate	10		
Acenaphthylene	10		
3-Nitroaniline	25		

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

<u>Semivolatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Acenaphthene	10		
2,4-Dinitrophenol	25		
4-Nitrophenol	25		
Dibenzofuran	10		
2,4-Dinitrotoluene	10		
2,6-Dinitrotoluene	10		
Diethylphthalate	10		
4-Chlorophenyl-phenylether	10		
Fluorene	10		
4-Nitroaniline	25		
4,6-Dinitro-2-methylphenol	25		
N-Nitrosodiphenylamine	10		
4-Bromophenyl-phenylether	10		
Hexachlorobenzene	10		
Pentachlorophenol	25		
Phenanthrene	10		
Anthracene	10		
Carbazole	10		
Di-n-Butylphthalate	10		
Fluoranthene	10		
Pyrene	10		
Butylbenzylphthalate	10		
3,3'-Dichlorobenzidine	10		
Benzo(a)anthracene	10		
bis(2-Ethylhexyl)phthalate	10		
Chrysene	10		
Di-n-Octylphthalate	10		
Benzo(b)fluoranthene	10		
Benzo(k)fluoranthene	10		
Benzo(a)pyrene	10		
Indeno(1,2,3-cd)pyrene	10		
Dibenz(a,h)anthracene	10		
Benzo(g,h,i)perylene	10		

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

<u>Pesticides/PCBs</u>	<u>Units, ug/L</u>	<u>Q</u>	<u>C</u>
alpha-BHC	0.05	J	C
beta-BHC	0.05	J	C
delta-BHC	0.05	J	C
gamma-BHC (Lindane)	0.05	J	C
Heptachlor	0.05	J	C
Aldrin	0.05	J	C
Heptachlor epoxide	0.05	J	C
Endosulfan I	0.05	J	C
Dieldrin	0.1	J	C
4,4'-DDE	0.1	J	C
Endrin	0.1	J	C
Endosulfan II	0.1	J	C
4,4'-DDD	0.1	J	C
Endosulfan sulfate	0.1	J	C
4,4'-DDT	0.1	J	C
Methoxychlor	0.5	J	C
Endrin ketone	0.1	J	C
Endrin aldehyde	0.1	J	C
alpha-Chlordane	0.05	J	C
gamma-Chlordane	0.05	J	C
Toxaphene	5	J	C
Aroclor-1016	1	J	C
Aroclor-1221	2	J	C
Aroclor-1232	1	J	C
Aroclor-1242	1	J	C
Aroclor-1248	1	J	C
Aroclor-1254	1	J	C
Aroclor-1260	1	J	C

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Volatiles</u>	<u>Semivolatiles</u>	<u>Pesticides</u>
YK973	1	1	1
YK974	1	1	1
YK975	1	1	1
YK976	1	1	1
YK978	1	1	1
YK979	1	1	1
YK980	1	1	1
YK981	1	1	1
YK982	1	1	1
YK983	1	1	1
YK984	1	1	1
YK985	1	1	1
YK986	1	1	1
YK987	1	1	1
YK988	1	1	1
YK989	1	N/A	N/A
Method Blanks	1	1	1

N/A - Not Analyzed

TABLE 3
Pesticides: Sample Extraction Dates

Case No.: 18134 Memo #3
 Site: Waste Disposal, Inc.
 Lab.: IT Corporation-Cerritos
 Reviewer: Margaret L. May, ESAT/ICF Technology, Inc.
 Date: July 16, 1992

Sample Number	Collection Date	Reextraction Date	Days Exceeding Extraction HT
YK973	05/12/92	06/08/92	20
YK974	05/13/92	06/08/92	19
YK975	05/13/92	06/08/92	19
YK976	05/13/92	06/08/92	19
YK978	05/13/92	06/08/92	19
YK979	05/13/92	06/08/92	19
YK980	05/12/92	06/08/92	20
YK981	05/12/92	06/08/92	20
YK982	05/12/92	06/08/92	20
YK983	05/12/92	06/08/92	20
YK984	05/13/92	06/08/92	19
YK985	05/12/92	06/08/92	20
YK986	05/13/92	06/08/92	19
YK987	05/12/92	06/08/92	20
YK988	05/13/92	06/08/92	19

HT - Holding Time
 40 CFR 136 Holding Times:
 7 days for extraction
 40 days from extraction for analysis

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TPO: [] ACTION [X] ATTENTION [] FYI

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 18134 Memo #3 LABORATORY IT Corporation-Cerritos

SDG NO. YK973 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE July 16, 1992

NO. OF SAMPLES 16 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>M</u>	_____
2. GC-MS TUNE/GC PERFORMANCE	<u>0</u>	<u>0</u>	<u>0</u>	_____
3. INITIAL CALIBRATIONS	<u>0</u>	<u>0</u>	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	<u>0</u>	<u>X</u>	<u>0</u>	_____
5. FIELD QC	<u>X</u>	<u>X</u>	<u>0</u>	_____
6. LABORATORY BLANKS	<u>X</u>	<u>X</u>	<u>0</u>	_____
7. SURROGATES	<u>0</u>	<u>0</u>	<u>0</u>	_____
8. MATRIX SPIKE/DUPLICATES	<u>0</u>	<u>0</u>	<u>0</u>	_____
9. REGIONAL QC	<u>F</u>	<u>F</u>	<u>F</u>	_____
10. INTERNAL STANDARDS	<u>0</u>	<u>0</u>	<u>F</u>	_____
11. COMPOUND IDENTIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	_____
12. COMPOUND QUANTITATION	<u>0</u>	<u>0</u>	<u>0</u>	_____
13. SYSTEM PERFORMANCE	<u>X</u>	<u>X</u>	<u>0</u>	_____
14. OVERALL ASSESSMENT	<u>X</u>	<u>X</u>	<u>M</u>	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

F - Not applicable.

TPO ACTION ITEMS: _____

TPO ATTENTION ITEMS: The quantitation limits for all pesticide/PCB target analytes were qualified due to holding time problems.

AREAS OF CONCERN: _____



ICF TECHNOLOGY INCORPORATED

AUG 24 1992

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Program Section (H-7-2)

THROUGH: Roseanne Sakamoto *RF*
Environmental Protection Specialist
Quality Assurance Management Section
Environmental Services Branch, OPM (P-3-2)

FROM: *W* Margie D. Weiner
ESAT Inorganic Data Reviewer
ICF Technology, Inc.

DATE: August 18, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	18134 Memo #01 and Memo #02
SDG NO.:	MYJ101 and MYJ123
LABORATORY:	American Analytical & Technical Services (AATS)
ANALYSIS:	RAS Total and Dissolved Metals
SAMPLE NO.:	32 Low Concentration Groundwater Samples (see Case Summary)
COLLECTION DATE:	May 12 and 13, 1992
REVIEWER:	Jack D. Sheets, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Edward Kantor, EMSL-LV, QAD
Steve Remaley, USEPA Region IX
Ray Flores, TPO USEPA Region VI

TPO: [] For Action [X] Attention [] FYI

ESATQA9A-6838/J1813412.RPT

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Data Validation Report

Case No.: 18134 Memo #01 and Memo #02
 Site: Waste Disposal, Inc.
 Laboratory: American Analytical & Technical Services (AATS)
 Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.
 Date: August 18, 1992

I. Case Summary

SAMPLE INFORMATION: SAMPLE NO.: SDG No. MYJ101: MYJ101 through MYJ108, and
 MYJ111 through MYJ122
SDG No. MYJ123: MYJ123 through MYJ134

COLLECTION DATE: May 12 and 13, 1992
 SAMPLE RECEIPT DATE: May 15, 1992

CONCENTRATION & MATRIX: 32 Low concentration groundwater samples

FIELD QC: Field Blanks (FB): MYJ133 and MYH134
 Equipment Blanks (EB): MYJ129 through MYJ132
 Background Samples (BG): None
 Duplicates (D1): MYJ101 and MYJ125
 (D2): MYJ102 and MYJ126
 (D3): MYJ107 and MYJ127
 (D4): MYJ108 and MYJ128

LABORATORY QC: Matrix Spike: MYJ121, MYJ122, MYJ123, and MYJ124 (Hg only)
 Duplicates: MYJ121, MYJ122, MYJ123, and MYJ124 (Hg only)
 ICP Serial Dilution: MYJ121, MYJ122, and MYJ123

ANALYSIS: RAS Total and Dissolved Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	May 20, 1992	May 21, 26 and 28, 1992
GFAA: Arsenic	May 20, 1992	May 20, 21, 22, 23, and 26, 1992
Lead	May 20, 1992	May 20, 21, and 22, 1992
Selenium	May 20, 1992	May 21, 22, 26, and 27, 1992
Thallium	May 20, 1992	May 20 and 21, 1992
Mercury	May 21 and 26, 1992	May 21 and 26, 1992

ADDITIONAL COMMENT:

This report combined the data packages from SDG MYJ101 and SDG MYJ123 in order to better evaluate the analytical data. Insufficient or incomplete data forced the usage of QC samples for both SDGs. All samples were collected at the same time, at the same site, and were prepared and digested on the same day by the laboratory. Samples for dissolved metals were filtered and preserved in the field. The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table

1B. Equipment or field blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Statement of Work for March 1990 and the EPA draft document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses" October, 1989.

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	H
2. Sample Holding Times	Yes	I
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	No	B
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	C
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	G
10. GFAA QC Analysis	No	D,F
a. Duplicate Injections		
b. Analytical Spikes		
11. ICP Serial Dilution Analysis	No	E
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	J

III. Validity and Comments

A. The results reported in Table 1A for the following analytes are considered as estimates (J) and are usable for limited purposes only.

- All results above the Instrument Detection Limit but below the Contract Required Detection Limit (denoted with an "L" qualifier)

Results above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are considered usable for limited purposes because of blank contamination problems. The results are considered estimates and are flagged "J" in Table 1A.

- Lead in samples MYJ103, MYJ104, MYJ105, MYJ106, MYJ111, MYJ123, and MYJ124
- Zinc in samples MYJ102, MYJ108, MYJ116, MYJ118, MYJ120, MYJ122, MYJ126, and MYJ128

The results reported for lead and zinc in the samples listed above are considered quantitatively uncertain. Analytical uncertainty near the detection limit exists because of possible equipment and field blank contamination.

Zinc was reported in equipment blank (EB) MYJ130 at a concentration greater than the CRDL, and lead was reported in equipment and field blank (FB) samples at concentrations greater than the CRDL, as listed below. All samples collected on the same day as the blanks with results less than 10 times the value of the blanks were estimated.

<u>Analyte</u>	<u>Sample #</u>	<u>Result ($\mu\text{g/L}$)</u>	<u>CRDL ($\mu\text{g/L}$)</u>
Lead	MYJ131 (EB)	3.4	3.0
Lead	MYJ132 (EB)	3.6	3.0
Lead	MYJ133 (FB)	3.2	3.0
Lead	MYJ134 (FB)	3.8	3.0
Zinc	MYJ130 (EB)	25.5	20.0

An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

Field blanks are intended to detect contaminants that may have been introduced in the field. Contaminants that are found in the field blank which are absent in the laboratory preparation blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.

- C. The following results are considered usable for limited purposes because of accuracy problems. The results are considered estimates and are flagged "J" in Table 1A.

- Arsenic in samples MYJ101 through MYJ108, MYJ111 through MYJ122, and MYJ124 through MYJ134
- Barium and Iron in samples MYJ101, MYJ103, MYJ105, MYJ107, MYJ111, MYJ113, MYJ115, MYJ117, MYJ119, MYJ121, MYJ125, MYJ127, MYJ129, MYJ131, and MYJ133
- Lead and thallium in samples MYJ101 through MYJ108, MYJ111 through MYJ122, and MYJ123 through MYJ134

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- Selenium in samples MYJ103, MYJ105, MYJ107, MYJ111, MYJ115, MYJ117, MYJ121, MYJ123, MYJ127, MYJ129, MYJ131, and MYJ133
- Silver in samples MYJ101, MYJ103, MYJ105, MYJ107, MYJ111, MYJ113, MYJ115, MYJ117, MYJ119, MYJ121, MYJ123, MYJ125, MYJ127, MYJ129, MYJ131, and MYJ133

The matrix spike recovery results for the analytes listed above in QC samples MYJ121, MYJ122, and MYJ123 did not meet the 75-125% criteria for accuracy. The percent recovery and percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

Analyte	MYJ121	MYJ121	MYJ122	MYJ122	MYJ123	MYJ123
	Total	Total	Dissolved	Dissolved	Total	Total
	<u>% Recovery</u>	<u>% Bias</u>	<u>% Recovery</u>	<u>% Bias</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	71.8	-28.2	68.3	-31.7	---	---
Barium	53.8	-46.2	---	---	---	---
Iron	52.0	-48.0	---	---	---	---
Lead	40.4	-59.6	55.9	-44.1	45.2	-54.8
Selenium	0.0	-100	---	---	---	---
Silver	71.9	-28.1	---	---	72.5	-27.5
Thallium	56.3	-43.7	64.1	-35.9	59.0	-41.0

Results above the IDL are considered quantitatively uncertain. The results reported for the analytes in the samples listed above may be biased low. The detection limits reported for the analytes in the samples listed above may be biased low and false negatives may exist. The percent recovery for selenium in samples MYJ122 and MYJ123 could not be used for evaluation due to a difference in methodologies used for analysis. The sample result was determined by the Method of Standard Additions (MSA) and the spiked sample result was determined directly from the GFAA calibration curve. The same method must be used for evaluation of matrix spike results.

Matrix spike results from SDG MYJ101 were used to evaluate the data in SDG MYJ123. The samples are from the same site and were prepared and digested on the same day. The first 20 samples are included with SDG MYJ101 and the following 12 samples were included in SDG MYJ123. Insufficient or incomplete data forced the usage of QC samples for both SDGs.

D. The following results are considered usable for limited purposes because of accuracy problems. The results are considered estimates and are flagged "J" in Table 1A.

- Arsenic in samples MYJ106, MYJ108, MYJ112, MYJ114, MYJ116, MYJ117, MYJ120, MYJ122, MYJ126, MYJ129, and MYJ131
- Lead in samples MYJ101 through MYJ108, MYJ111 through MYJ118, MYJ120 through MYJ128, and MYJ130
- Thallium in samples MYJ101 through MYJ108, and MYJ111 through MYJ128

Arsenic, lead, and thallium were analyzed by the Graphite Furnace Atomic Absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The analytical spike recovery results for arsenic, lead, and thallium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and possible percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	MYJ106	65.7	-34.3
	MYJ108	83.1	-16.9
	MYJ112	74.2	-25.8
	MYJ114	66.5	-33.5
	MYJ116	82.1	-17.9
	MYJ117	83.3	-16.7
	MYJ120	82.4	-17.6
	MYJ122	56.7	-43.3
	MYJ126	78.9	-21.1
	MYJ129	81.3	-18.7
	MYJ131	79.6	-20.4
Lead	MYJ101	47.5	-52.5
	MYJ102	44.3	-55.7
	MYJ103	56.1	-43.9
	MYJ104	47.2	-52.8
	MYJ105	55.3	-44.7
	MYJ106	40.3	-59.7
	MYJ107	51.0	-49.0
	MYJ108	53.7	-46.3
	MYJ111	56.3	-43.7
	MYJ112	51.8	-49.2
	MYJ113	49.1	-50.9
	MYJ114	43.7	-56.3
	MYJ115	47.3	-52.7
	MYJ116	49.5	-50.5
	MYJ117	54.6	-45.4
	MYJ118	49.6	-50.4
	MYJ120	58.2	-41.8
	MYJ121	48.9	-51.1

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Lead	MYJ122	61.3	-38.7
	MYJ123	58.7	-41.3
	MYJ124	69.4	-30.6
	MYJ125	58.0	-42.0
	MYJ126	56.6	-43.4
	MYJ127	53.8	-46.2
	MYJ128	57.0	-43.0
	MYJ130	116.9	+16.9
Thallium	MYJ101	74.5	-25.5
	MYJ102	46.6	-53.4
	MYJ103	58.3	-41.7
	MYJ104	41.6	-58.4
	MYJ105	73.1	-26.9
	MYJ106	76.4	-23.6
	MYJ107	77.8	-22.2
	MYJ108	78.6	-21.4
	MYJ111	61.7	-38.3
	MYJ112	73.5	-26.5
	MYJ113	69.8	-30.2
	MYJ114	67.9	-32.1
	MYJ115	57.0	-43.0
	MYJ116	76.0	-24.0
	MYJ117	67.5	-32.5
	MYJ118	74.3	-25.7
	MYJ119	59.7	-40.3
	MYJ120	68.7	-31.3
	MYJ121	61.5	-38.5
	MYJ122	70.1	-29.9
	MYJ123	77.9	-22.1
	MYJ124	78.1	-21.9
	MYJ125	73.4	-26.6
	MYJ126	74.0	-26.0
	MYJ127	70.1	-29.9
	MYJ128	73.3	-26.7

The post-digestion spike recovery results for arsenic, lead, and thallium in the samples listed above show an analytical deficiency. The results reported for arsenic, lead, and thallium in the samples listed above are considered quantitatively uncertain. The result reported for lead in sample MYJ130 may be biased high. The results reported for arsenic, lead, and thallium in the samples listed above may be biased low and, where non-detected, false negatives may exist.

E. The following results are considered usable for limited purposes because of a problem with the ICP serial dilution. The results are considered estimates and are flagged "J" in Table 1A.

- Calcium, magnesium, and sodium in samples MYJ102, MYJ104, MYJ106, MYJ108, MYJ112, MYJ114, MYJ116, MYJ118, MYJ120, MYJ122, MYJ124, MYJ126 and MYJ128

The percent difference of the ICP serial dilution analysis of sample number MYJ122 did not meet the less than 10% criteria for the analytes shown below.

<u>Analyte</u>	MYJ122
	<u>% Difference</u>
Calcium	12.0
Magnesium	13.5
Sodium	16.2

A five fold dilution of a sample is performed in association with the ICP procedure to indicate whether interferences exist due to sample matrix effects. The results reported for calcium, magnesium, and sodium in the samples listed above are considered quantitatively uncertain. Chemical and physical interferences may exist due to the sample matrix.

F. The following results are considered usable for limited purposes because of accuracy problems. The results are considered estimates and are flagged "J" in Table 1A.

- Lead in sample MYJ119
- Selenium in samples MYJ104, MYJ118, MYJ119, MYJ122, MYJ123, and MYJ128

The results reported for lead and selenium in the samples listed above are considered quantitatively uncertain. The Method of Standard Addition (MSA) is the addition of 3 increments of a standard spike solution (at spike levels of 50%, 100%, and 150% of the sample concentration) to sample aliquots of the same size. Measurements are made on the original sample and on each addition. This technique compensates for a sample constituent that enhances or depresses the analytical signal thus producing a slope different from that of the calibration curve. When the spike level criterium is not met, the results may have an increased variability. The spiking levels for lead and selenium in the samples listed above were not spiked at the correct levels. The samples were spiked at 10 µg/L, 20 µg/L and 30 µg/L regardless of the initial sample concentration. Information from the MSA analysis is summarized below.

<u>Analyte</u>	<u>Sample #</u>	<u>Result (µg/L)</u>	<u>Required Spike Levels</u>
Lead	MYJ119	5.5	2.5, 5.0, 7.5
Selenium	MYJ104	50.5	25, 50, 75
	MYJ118	53.7	25, 50, 75
	MYJ119	5.2	2.5, 5.0, 7.5
	MYJ122	6.0	3.0, 6.0, 9.0
	MYJ123	5.2	2.5, 5.0, 7.5
	MYJ128	6.3	3.0, 6.0, 9.0

- G. A Relative Percent Difference (RPD) greater than 20% was obtained for aluminum, iron, and manganese in the analysis of field duplicate pair samples as shown below.

	MYJ101 D1	MYJ107 D3
	MYJ125 D1	MYJ127 D3
<u>Analyte</u>	<u>RPD</u>	<u>RPD</u>
Aluminum	69.9	23.2
Iron	80.5	31.2
Manganese	31.1	---

The analysis of field duplicate samples is a measure of both field and laboratory precision. The results are expected to vary more than laboratory duplicates ($\pm 20\%$ RPD criteria for precision) since sampling variability is included in the measurement. The imprecision of the results of the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.

- H. A CRDL standard was not analyzed during the analysis of the samples for mercury. The linearity near the CRDL for mercury could therefore not be verified. According to the 3/90 SOW, in order to verify linearity near the CRDL, the laboratory must analyze an AA standard at the CRDL or the IDL, whichever is greater, at the beginning of each sample analysis run, but not before the Initial Calibration Verification (ICV).
- I. The 40 CFR 136 technical holding times were not exceeded for any of the samples. There were no holding time problems.
- J. All of the other results are considered usable for all purposes. All QC requirements, other than those discussed above, have been met and are considered acceptable.

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #01

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ101

Concentration in ug/L

Collection Date	5-12-92			5-12-92			5-13-92			5-13-92			5-13-92			5-13-92			5-12-92		
Sample Location	GW-01			GW-01			GW-02			GW-02			GW-04			GW-04			GW-07		
Sample I.D.	MYJ101 D1			MYJ102 D2			MYJ103			MYJ104			MYJ105			MYJ106			MYJ107 D3		
Metals Type	Total			Dissolved			Total			Dissolved			Total			Dissolved			Total		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	1620		G	104 U			2950			104 U			7180			104 U			1590		G
Antimony	16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U		
Arsenic	6.0 U J		C	6.0 U J		C	6.0 U J		C	6.0 U J		C	6.0 U J		C	6.0 U J		CD	6.0 U J		C
Barium	64.7 L J		AC	21.5 L J		A	110 L J		AC	28.0 L J		A	159 L J		AC	21.7 L J		A	87.0 L J		AC
Beryllium	1.0 U			1.0 U			1.0 U			1.0 U			1.3 L J		A	1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	278000			287000 J		E	208000			208000 J		E	196000			194000 J		E	226000		
Chromium	9.3 L J		A	7.4 L J		A	10.8			7.1 L J		A	18.9			9.2 L J		A	3.9 L J		A
Cobalt	6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U		
Copper	14.5 L J		A	6.9 L J		A	41.5			6.5 L J		A	23.8 L J		A	6.4 L J		A	13.3 L J		A
Iron	2070 J		CG	104			4450 J		C	67.9 L J		A	8280 J		C	79.3 L J		A	2520 J		CG
Lead	2.2 L J		ACD	1.0 U J		CD	3.4 J		BCD	1.4 L J		ABCD	7.2 J		BCD	2.2 L J		ABCD	1.3 L J		ACD
Magnesium	85100			86700 J		E	62700			61900 J		E	61600			58900 J		E	71700		
Manganese	198		G	8.0 L J		A	241			7.2 L J		A	348			11.3 L J		A	308		
Mercury	0.20 U		H	0.20 U		H	0.20 U		H	0.20 U		H	0.57		H	0.20 U		H	0.20 U		H
Nickel	8.0 U			8.0 U			8.0 U			8.0 U			15.0 L J		A	8.0 U			8.0 U		
Potassium	5210			5060			5030			4380 L J		A	5180			4970 L J		A	4500 L J		A
Selenium	48.8			46.4			16.2 J		C	50.5 J		F	19.5 J		C	21.9			25.7 J		C
Silver	1.0 U J		C	1.0 U			1.0 U J		C	1.0 U			1.0 U J		C	1.0 U			1.0 U J		C
Sodium	143000			146000 J		E	108000			109000 J		E	118000			120000 J		E	163000		
Thallium	2.0 U J		CD	2.0 U J		CD	2.0 U J		CD	2.0 U J		CD	2.0 U J		CD	2.0 U J		CD	2.0 U J		CD
Vanadium	11.2 L J		A	6.0 U			12.4 L J		A	6.0 U			26.0 L J		A	6.0 U			8.5 L J		A
Zinc	19.7 L J		A	6.1 L J		AB	51.6			19.6 L J		A	65.8			237			20.4		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #01

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ101

Concentration in ug/L

Collection Date	5-12-92			5-13-92			5-13-92			5-13-92			5-13-92			5-12-92			5-12-92		
Sample Location	GW-07			GW-10			GW-10			GW-11			GW-11			GW-23			GW-23		
Sample I.D.	MYJ108 D4			MYJ111			MYJ112			MYJ113			MYJ114			MYJ115			MYJ116		
Metals Type	Dissolved			Total			Dissolved			Total			Dissolved			Total			Dissolved		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	104 U			9490			104 U			104 U			104 U			2490			104 U		
Antimony	16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U		
Arsenic	6.0 U J CD			9.5 L J AC			6.0 U J CD			6.0 U J C			6.0 U J CD			6.0 U J C			6.0 U J CD		
Barium	18.1 L J A			382 J C			24.7 L J A			26.2 L J AC			22.5 L J A			89.5 L J AC			25.1 L J A		
Beryllium	1.0 U			1.4 L J A			1.0 L J A			1.0 U			1.1 L J A			1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	204000 J E			225000			226000 J E			277000			268000 J E			232000			239000 J E		
Chromium	3.3 L J A			18.1			3.0 U			5.9 L J A			5.9 L J A			5.6 L J A			3.0 U		
Cobalt	6.0 U			18.0 L J A			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U		
Copper	4.3 L J A			28.8			6.3 L J A			8.5 L J A			7.4 L J A			16.2 L J A			5.3 L J A		
Iron	55.3 L J A			13700 J C			65.8 L J A			204 J C			72.9 L J A			3270 J C			64.2 L J A		
Lead	1.4 L J ACD			8.7 J BCD			1.0 U J CD			1.0 U J CD			1.0 U J CD			1.7 L J ACD			1.2 L J ACD		
Magnesium	64300 J E			68400			64900 J E			79500			77100 J E			69600			70800 J E		
Manganese	33.7			3540			2010			87.8			9.6 L J A			876			130		
Mercury	0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.20 U H		
Nickel	8.0 U			18.8 L J A			8.0 U			8.0 U			8.0 U			8.0 U			8.0 U		
Potassium	4190 L J A			6620			4620 L J A			7880			8180			4610 L J A			4540 L J A		
Selenium	21.4			18.7 J C			46.0			52.9			47.6			22.6 J C			21.6		
Silver	1.0 U			1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U J C			1.0 U		
Sodium	148000 J E			133000			132000 J E			154000			150000 J E			132000			138000 J E		
Thallium	2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD		
Vanadium	6.0 U			39.7 L J A			6.0 U			6.0 U			6.0 U			10.8 L J A			6.0 U		
Zinc	7.4 L J AB			74.1			8.6 L J A			82.3			62.6			30.3			12.1 L J AB		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #01

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ101

Concentration in ug/L

Collection Date	5-12-92			5-12-92			5-12-92			5-12-92			5-12-92			Lab Blank					
Sample Location	GW-24			GW-24			GW-28			GW-28			GW-26								
Sample I.D.	MYJ117			MYJ118			MYJ119			MYJ120			MYJ121						MYJ122		
Metals Type	Total			Dissolved			Total			Dissolved			Total						Dissolved		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	104 U			104 U			13200			104 U			2170			104 U			104 U		
Antimony	16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U		
Arsenic	6.0 U J CD			6.0 U J C			6.5 L J AC			6.0 U J CD			6.0 U J C			6.0 U J CD			6.0 U		
Barium	23.8 L J AC			24.3 L J A			201 J C			30.6 L J A			108 L J AC			26.0 L J A			16.0 U		
Beryllium	1.0 U			1.0 U			1.2 L J A			1.0 U			1.1 L J A			1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	205000			221000 J E			25300			245000 J E			243000			242000 J E			596 U		
Chromium	3.1 L J A			3.8 L J A			21.6			3.7 L J A			6.6 L J A			3.0 U			3.0 U		
Cobalt	6.0 U			6.0 U			12.7 L J A			6.0 U			6.0 U			6.0 U			6.0 U		
Copper	5.4 L J A			5.6 L J A			60.8			6.6 L J A			14.1 L J A			5.5 L J A			4.0 U		
Iron	106 J C			63.2 L J A			17200 J C			73.9 L J A			3570 J C			68.5 L J A			13.5 L J A		
Lead	1.3 L J ACD			1.1 L J ACD			11.1 J CF			1.5 L J ACD			2.8 L J ACD			1.0 U J CD			1.0 U		
Magnesium	59900			63900 J E			82700			74300 J E			71400			70200 J E			695 U		
Manganese	8.3 L J A			7.4 L J A			733			14.8 L J A			546			19.4			2.0 U		
Mercury	0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.55			0.22			0.20 U H		
Nickel	8.0 U			8.0 U			29.4 L J A			8.0 U			12.5 L J A			8.0 U			8.0 U		
Potassium	3370 L J A			3570 L J A			7550			5200			4940 L J A			4180 L J A			787 U		
Selenium	18.3 J C			53.7 J F			10.5 J F			28.0			32.1 J C			11.9 J F			3.0 U		
Silver	1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U		
Sodium	118000			125000 J E			141000			140000 J E			142000			142000 J E			1019 U		
Thallium	2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U		
Vanadium	6.0 U			6.0 U			50.0			6.0 U			10.7 L J A			6.0 U			6.0 U		
Zinc	24.7			19.5 L J ABC			101			22.5 J B			23.8			10.7 L J AB			4.0 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #01

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICP Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ101

Concentration in ug/L

Sample Location Sample I.D.	IDL		CRDL											
Parameter	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com	Result	Val Com
Aluminum	104		200											
Antimony	16.0		60.0											
Arsenic	6.0		10.0											
Barium	16.0		200											
Beryllium	1.0		5.0											
Cadmium	2.0		5.0											
Calcium	596		5000											
Chromium	3.0		10.0											
Cobalt	6.0		50.0											
Copper	4.0		25.0											
Iron	12.0		100											
Lead	1.0		3.0											
Magnesium	695		5000											
Manganese	2.0		15.0											
Mercury	0.20		0.20											
Nickel	8.0		40.0											
Potassium	787		5000											
Selenium	3.0		5.0											
Silver	1.0		10.0											
Sodium	1019		5000											
Thallium	2.0		10.0											
Vanadium	6.0		50.0											
Zinc	4.0		20.0											

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #02

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ123

Concentration in ug/L

Collection Date	5-13-92			5-13-92			5-12-92			5-12-92			5-12-92			5-12-92			5-12-92		
Sample Location	GW-30			GW-30			GW-12			GW-12			GW-17			GW-17			GW-32		
Sample I.D.	MYJ123			MYJ124			MYJ125 D1			MYJ126 D2			MYJ127 D3			MYJ128 D4			MYJ129 EB		
Metals Type	Total			Dissolved			Total			Dissolved			Total			Dissolved			Total		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	111 L J A			104 U			3360		G	104 U			1260		G	104 U			104 U		
Antimony	26.7 L J A			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U			16.0 U		
Arsenic	6.0 U			6.0 U J C			6.0 U J C			6.0 U J CD			6.0 U J C			6.0 U J C			6.0 U J CD		
Barium	40.5 L J A			40.0 L J A			96.5 L J AC			21.9 L J A			74.3 L J AC			20.7 L J A			16.0 U J C		
Beryllium	1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	159000			162000 J E			271000			276000 J E			220000			235000 J E			596 U		
Chromium	5.2 L J A			3.8 L J A			10.8			6.0 L J A			4.7 L J A			3.0 L J A			3.0 U		
Cobalt	6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U		
Copper	4.5 L J A			4.0 U			13.9 L J A			4.7 L J A			9.3 L J A			4.9 L J A			4.0 U		
Iron	201			42.5 L J A			4860 J CG			68.4 L J A			1840 J CG			54.3 L J A			12.0 U J C		
Lead	3.6 J BCD			1.5 L J ABCD			2.5 L J ACD			1.0 U J CD			1.9 L J ACD			1.0 U J CD			2.7 L J AC		
Magnesium	42900			43500 J E			85200			85300 J E			70600			74100 J E			695 U		
Manganese	34.9			7.8 L J A			271		G	7.6 L J A			263			38.5			2.0 U		
Mercury	0.20 U		H	0.20 U		H	0.20 U		H	0.20 U		H	0.20 U		H	0.20 U		H	0.20 U		H
Nickel	8.0 U			8.0 U			8.0 U			8.0 U			8.0 U			8.0 U			8.0 U		
Potassium	4340 L J A			4110 L J A			5620			5020			4560 L J A			4660 L J A			787 U		
Selenium	26.2 J CF			30.3			49.5			42.9			26.2 J C			25.2 J F			3.0 U J C		
Silver	1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U J C		
Sodium	85400			86300 J E			141000			145000 J E			162000			173000 J E			2630 L J A		
Thallium	2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J CD			2.0 U J C		
Vanadium	6.0 U			6.0 U			15.5 L J A			6.0 U			7.8 L J A			6.0 U			6.0 U		
Zinc	11.7 L J A			8.7 L J A			20.1			6.1 L J AB			17.7 L J A			8.6 L J AB			4.0 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #02

Site: Waste Disposal, Inc.

Lab.: American Analytical & Technical Services (AATS)

Reviewer: Jack D. Sheets, ESAT/ICF Technology, Inc.

Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
for RAS Metals (total & dissolved)
SDG: MYJ123

Concentration in ug/L

Collection Date	5-12-92			5-13-92			5-13-92			5-13-92			5-13-92					
Sample Location	GW-32			GW-33			GW-33			GW-34			GW-34			Lab Blank		
Sample I.D.	MYJ130 EB			MYJ131 EB			MYJ132 EB			MYJ133 FB			MYJ134 FB					
Metals Type	Dissolved			Total			Dissolved			Total			Dissolved					
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	104 U			104 U			104 U			104 U			104 U			104 U		
Antimony	16.0 U			16.0 U			16 U			16 U			16 U			16.0 U		
Arsenic	6.0 U J C			6.0 U J CD			6.0 U J C			6.0 U J C			6.0 U J C			6.0 U		
Barium	16.0 U			16.0 U J C			16.0 U			16.0 U J C			16.0 U			16.0 U		
Beryllium	1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	596 U			596 U			596 U			596 U			596 U			596 U		
Chromium	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U		
Cobalt	6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U		
Copper	4.0 U			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		
Iron	12.0 U			12.0 U J C			12.0 U			12.0 U J C			12.0 U			12.0 U		
Lead	2.7 L J ACD			3.4 J BC			3.6 J BC			3.2 J BC			3.8 J BC			1.0 U		
Magnesium	695 U			695 U			695 U			695 U			695 U			695 U		
Manganese	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Mercury	0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.20 U H			0.20 U H		
Nickel	8.0 U			8.0 U			8.0 U			8.0 U			8.0 U			8.0 U		
Potassium	787 U			787 U			787 U			787 U			787 U			787 U		
Selenium	3.0 U			3.0 U J C			3.0 U			3.0 U J C			3.0 U			3.0 U		
Silver	1.0 U			1.0 U J C			1.0 U			1.0 U J C			1.0 U			1.0 U		
Sodium	1820 L J A			1790 L J A			1860 L J A			1760 L J A			1250 L J A			1019 U		
Thallium	2.0 U J C			2.0 U J C			2.0 U J C			2.0 U J C			2.0 U J C			2.0 U		
Vanadium	6.0 U			6.0 U			6.0 U			6.0 U			6.0 U			6.0 U		
Zinc	25.5 B			4.0 U			4.0 U			4.0 U			4.0 U			4.0 U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

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TABLE 1A

Case No.: 18134 Memo #02
 Site: Waste Disposal, Inc.
 Lab.: American Analytical & Technical Services (AATS)
 Reviewer: Jack D. Sheets, ESAT/ICP Technology, Inc.
 Date: August 18, 1992

Analysis Type: Low Concentration Water Samples
 for RAS Metals (total & dissolved)
 SDG: MYJ123

Concentration in ug/L

Sample Location Sample I.D.	CRDL																	
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	200																	
Antimony	60																	
Arsenic	10																	
Barium	200																	
Beryllium	5.0																	
Cadmium	5.0																	
Calcium	5000																	
Chromium	10.0																	
Cobalt	50.0																	
Copper	25.0																	
Iron	100																	
Lead	3.0																	
Magnesium	5000																	
Manganese	15.0																	
Mercury	0.20																	
Nickel	40.0																	
Potassium	5000																	
Selenium	5.0																	
Silver	10.0																	
Sodium	5000																	
Thallium	10.0																	
Vanadium	50.0																	
Zinc	20.0																	

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U The analyte was analyzed for but was not detected above the level of the associated value. The associated value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils in all of the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the associated value is the Contract Required Detection Limit (CRDL).
- L Indicates results which fall between the IDL for waters or the MDL for soils and the CRDL. Results are considered estimates and usable for limited purposes.
- J The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample. Results are considered estimates and the data usable for limited purposes. The results are qualitatively acceptable.
- R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte. Results are rejected and data are unusable for any purposes.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected above the level of the associated value. The associated value may not accurately or precisely represent the sample detection limit.

<u>Collection Date</u>	<u>Blank Sample #</u>	<u>Associated Samples</u>
5-12-92	MYJ129 (EB)	MYJ101, MYJ107, MYJ115, MYJ117, MYJ119, MYJ121, MYJ125, MYJ127
5-12-92	MYJ130 (EB)	MYJ102, MYJ108, MYJ110, MYJ118, MYJ120, MYJ122, MYJ126, MYJ128
5-13-92	MYJ131 (EB)	MYJ103, MYJ105, MYJ111, MYJ113, MYJ123
5-13-92	MYJ132 (EB)	MYJ104, MYJ106, MYJ112, MYJ114, MYJ124
5-13-92	MYJ133 (FB)	
5-13-92	MYJ134 (FB)	

TPO: [] ACTION [X] ATTENTION [] FYI

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 18134 Memo #01 and #02 LABORATORY American Analytical (AATS)

SDG NO. MYJ101 and MYJ123 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE August 18, 1992

REVIEWER [] ESD [X] ESAT Reviewer's Name Jack D. Sheets

NO. OF SAMPLES 32 WATER _____ SOIL _____ OTHER _____

	ICP	AA	Hg	Other
1. HOLDING TIMES	<u>O</u>	<u>O</u>	<u>O</u>	_____
2. CALIBRATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
3. BLANKS	<u>X</u>	<u>X</u>	<u>O</u>	_____
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>O</u>			
5. LABORATORY CONTROL SAMPLE (LCS)	<u>O</u>	<u>O</u>	<u>F</u>	_____
6. DUPLICATE ANALYSIS	<u>O</u>	<u>O</u>	<u>O</u>	_____
7. MATRIX SPIKE ANALYSIS	<u>M</u>	<u>M</u>	<u>O</u>	_____
8. METHOD OF STANDARD ADDITION (MSA)		<u>X</u>		
9. ICP SERIAL DILUTION	<u>M</u>			
10. SAMPLE QUANTITATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
11. SAMPLE VERIFICATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
12. OTHER QC	<u>O</u>	<u>O</u>	<u>O</u>	_____
13. OVERALL ASSESSMENT	<u>M</u>	<u>M</u>	<u>O</u>	_____

O - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

F - Not applicable.

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TPO: [] ACTION [X] ATTENTION [] FYI

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 18134 Memo #01 and #02 LABORATORY American Analytical (AATS)

SDG NO. MYJ101 and MYJ123 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE August 18, 1992

REVIEWER [] ESD [X] ESAT Reviewer's Name Jack D. Sheets

NO. OF SAMPLES 32 WATER _____ SOIL _____ OTHER _____

TPO ACTION ITEMS: _____

TPO ATTENTION ITEMS: A CRDL standard was not analyzed for mercury.

AREAS OF CONCERN: Variable (55.3 to 219%) CRDL recoveries were reported for lead. While there are no criteria for CRDL recoveries, variable recoveries indicate analytical problems with determinations near the detection limit. Method of Standard Additions (MSA) spike levels were incorrect which may cause quantitation problems. This is supported by a comparison between total and dissolved selenium results for samples with the same location. The results obtained from MSA for selenium in the dissolved sample were 3 to 4 times higher than the same sample results for total metals calculated from the GFAA curve. If results for both total and dissolved metals are generated from the GFAA calibration curve, the agreement is within acceptable limits. Selenium laboratory duplicate analysis for MYJ121 reported on Form 6 cannot be evaluated due to a difference in analytical methodologies. The sample and duplicate sample were analyzed by MSA and by GFAA calibration curve, respectively. The same method must be used to evaluate the data. Using selenium results generated from the GFAA calibration curve for both samples, an acceptable RPD was obtained. Matrix spike results reported for selenium on Form 5 should not be used for evaluation of the data due to a difference in methodologies. The sample result was obtained from MSA, and the spiked sample was obtained from the GFAA calibration curve. The same method must be used for evaluation of matrix spike results. If the GFAA calibration curve is used to generate both the sample and spiked sample results, a recovery of 64.8% is obtained. Data from SDG MYJ101 was used to evaluate the matrix spike results for barium, arsenic, iron, selenium, and silver. Both SDG MYJ101 and SDG MYJ123 were prepared on the same day. Insufficient or incomplete data forced the usage of SDG MYJ101 matrix spike results for evaluation of SDG MYJ123.

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APPENDIX D
DATA VALIDATION REPORTS - AUGUST



ICF TECHNOLOGY INCORPORATED

10/16/92

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

THROUGH: Roseanne Sakamoto
Environmental Protection Specialist
Quality Assurance Management Section, (P-3-2)

FROM: Carolyn Studeny
Senior Organic Data Reviewer
Environmental Services Assistance Team (ESAT)

DATE: October 5, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	18609 Memo #03
SDG NO.:	YL326
LABORATORY:	Pacific Analytical, Inc. (PACIF)
ANALYSIS:	RAS Volatiles
SAMPLE NO.:	15 Water Samples (In Case Summary)
COLLECTION DATE:	August 11 through 13, 1992
REVIEWER:	Lisa Hanusiak ESAT/ICF Technology, Inc.

If there are any questions, please contact Carolyn Studeny at (415) 882-3184.

Attachment

cc: Edward Kantor, EMSL-LV, QAD
Steve Remaley, TPO USEPA Region IX

TPO: []FYI [X]Attention []For Action

Data Validation Report

Case No.: 18609 Memo #03
Site: Waste Disposal, Inc.
Laboratory: Pacific Analytical, Inc. (PACIF)
Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.
Date: October 5, 1992

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers: YL326 through YL329 and YL331 through YL341
Concentration and Matrix: Low Level Water
Analysis: RAS Volatiles
SOW: 3/90
Collection Date: August 11 through 13, 1992
Sample Receipt Date: August 13 and 14, 1992
Analysis Date: August 20 and 21, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): None
Equipment Blanks (EB): YL340 and YL341
Background Samples (BG): None
Field Duplicates (D1): YL326/YL338
(D2): YL329/YL339

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK11: YL326, YL329, YL335, YL336, YL336MS, YL336MSD, YL338, YL339 and YL340
VBLK12: YL327, YL328, YL331 through YL334, YL337 and YL341

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers
2: Sample Quantitation Limits of Target Compound List (TCL) Analytes

TPO ATTENTION REQUIRED:

No mass spectral data were submitted for any of the samples. As a result, all positive identifications are considered to be tentative. In addition, no Tentatively Identified Compounds (TIC) were reported for any of the samples.

ADDITIONAL COMMENTS:

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

MS - Matrix Spike; MSD - Matrix Spike Duplicate

ESAT-QA-9A-7201/L18609M3.RPT

D-2

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[Y]	[C]
GC/MS TUNE/GC PERFORMANCE	[Y]	[]
CALIBRATIONS	[Y]	[]
FIELD QC	[N]	[A]
LABORATORY BLANKS	[Y]	[]
SURROGATES	[Y]	[]
MATRIX SPIKE/DUPLICATES	[Y]	[]
INTERNAL STANDARDS	[Y]	[]
COMPOUND IDENTIFICATION	[N]	[B]
COMPOUND QUANTITATION	[Y]	[]
SYSTEM PERFORMANCE	[N]	[BD]

N/A - Not Applicable

III. Validity and Comments

- A. Due to equipment blank contamination problems, the results reported in Table 1A for the following analytes are estimates (J) and usable for limited purposes only:

- Methylene chloride in sample numbers YL326, YL331, YL332, YL334 and YL336
- Acetone in sample numbers YL328, YL329, YL331 through YL334, YL336 and YL337

Methylene chloride and acetone were found in equipment blank sample number YL341 at concentrations of 28 and 13 $\mu\text{g/L}$, respectively. The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased, where appropriate, according to the blank qualification rules.

- B. Due to insufficient data, the detected results for the following analytes are considered to be presumptively present (N) and usable for limited purposes only (see Table 1A):

- Methylene chloride and acetone in sample number YL341
- Chloroform in sample numbers YL340 and YL341
- 2-Butanone in sample number YL329
- Tetrachloroethene in sample number YL332

No mass spectra were submitted for the detected target analytes in any of the samples for this case. Without the mass spectra, the positive identification of target analytes could not be confirmed. The target analytes reported in the samples listed above are considered to be tentatively identified.

- C. The 40 CFR 136 technical holding time was not exceeded for any of the samples analyzed.

- D. All other results are considered valid and usable for all purposes. All other quality control criteria have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 2

TABLE 1A*

Case No.: 18609 Memo #03

Site: Waste Disposal, Inc.

Lab.: Pacific Analytical, Inc. (PACIF)

Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.

Date: October 5, 1992

Analysis Type: Low Level Water Samples
for RAS Volatiles

Concentration in ug/L

Station Location Sample I.D.	GW-01 YL326 D1			GW-02 YL327			GW-04 YL328			GW-07 YL329 D2			GW-10 YL331			GW-11 YL332			GW-23 YL333		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Methylene chloride	12 U	J	A	10 U			10 U			10 U			12 U	J	A	10 U	J	A	10 U		
Acetone	10 U			10 U			21 U	J	A	29 U	J	A	50 U	J	A	16 U	J	A	14 U	J	A
Chloroform	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Butanone	10 U			10 U			10 U			41	N	B	10 U			10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			17	N	B	10 U		
Station Location Sample I.D.	GW-24 YL334			GW-28 YL335			GW-26 YL336			GW-30 YL337			GW-12 YL338 D1			GW-17 YL339 D2			GW-34 YL340 EB		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Methylene chloride	10 U	J	A	10 U			11 U	J	A	10 U			10 U			10 U			10 U		
Acetone	15 U	J	A	10 U			25 U	J	A	16 U	J	A	10 U			10 U			10 U		
Chloroform	10 U			10 U			10 U			10 U			10 U			10 U			34	N	B
2-Butanone	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		

*The other requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1A*

Analysis Type: Low Level Water Samples
for RAS Volatiles

Case No.: 18609 Memo #03
Site: Waste Disposal, Inc.
Lab.: Pacific Analytical, Inc. (PACIF)
Reviewer: Lisa Hanusiak, ESAT/ICP Technology, Inc.
Date: October 5, 1992

Concentration in ug/L

[illegible]

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. Compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 2
Sample Quantitation Limits

Case No.: 18609 Memo #03
Site: Waste Disposal, Inc.
Laboratory: Pacific Analytical, Inc. (PACIF)
Reviewer: Lisa Hanusiak
ESAT/ICF Technology, Inc.
Date: October 5, 1992

<u>Volatile Compounds</u>	<u>Units. $\mu\text{g/L}$</u>	<u>Q</u>	<u>C</u>
Chloromethane	10		
Bromomethane	10		
Vinyl chloride	10		
Chloroethane	10		
Methylene chloride	10		
Acetone	10		
Carbon disulfide	10		
1,1-Dichloroethene	10		
1,1-Dichloroethane	10		
1,2-Dichloroethene (Total)	10		
Chloroform	10		
1,2-Dichloroethane	10		
2-Butanone	10		
1,1,1-Trichloroethane	10		
Carbon tetrachloride	10		
Bromodichloromethane	10		
1,2-Dichloropropane	10		
1,1,2,2-Tetrachloroethane	10		
trans-1,3-Dichloropropene	10		
Trichloroethene	10		
Dibromochloromethane	10		
1,1,2-Trichloroethane	10		
Benzene	10		
cis-1,3-Dichloropropene	10		
Bromoform	10		
2-Hexanone	10		
4-Methyl-2-pentanone	10		
Tetrachloroethene	10		
Toluene	10		
Chlorobenzene	10		
Ethylbenzene	10		
Styrene	10		
Xylenes (Total)	10		

Q - Qualifier

C - Comment

TABLE 2
(Continued)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Volatiles</u>
YL326	1.0
YL327	1.0
YL328	1.0
YL329	1.0
YL331	1.0
YL332	1.0
YL333	1.0
YL334	1.0
YL335	1.0
YL336	1.0
YL337	1.0
YL338	1.0
YL339	1.0
YL340	1.0
YL341	1.0
Method Blanks	1.0

TPO: []FYI [X]Attention []For Action

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 18609 Memo #03 LABORATORY Pacific Analytical, Inc.

SDG NO. YL326 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE October 5, 1992

NO. OF SAMPLES 15 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	<u>0</u>	_____	_____	_____
2. GC-MS TUNE/GC PERFORMANCE	<u>0</u>	_____	_____	_____
3. INITIAL CALIBRATIONS	<u>0</u>	_____	_____	_____
4. CONTINUING CALIBRATIONS	<u>0</u>	_____	_____	_____
5. FIELD QC	<u>X</u>	_____	_____	_____
6. LABORATORY BLANKS	<u>0</u>	_____	_____	_____
7. SURROGATES	<u>0</u>	_____	_____	_____
8. MATRIX SPIKE/DUPLICATES	<u>0</u>	_____	_____	_____
9. REGIONAL QC ("F" - not applicable)	<u>F</u>	_____	_____	_____
10. INTERNAL STANDARDS	<u>0</u>	_____	_____	_____
11. COMPOUND IDENTIFICATION	<u>X</u>	_____	_____	_____
12. COMPOUND QUANTITATION	<u>0</u>	_____	_____	_____
13. SYSTEM PERFORMANCE	<u>X</u>	_____	_____	_____
14. OVERALL ASSESSMENT	<u>X</u>	_____	_____	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ATTENTION ITEMS: No mass spectral data were submitted for any of the samples. As a result, all positive identifications are considered to be tentative.

AREAS OF CONCERN: _____

SUBJECT: ESAT WORK-UNIT REQUEST FOR DATA VALIDATION

TO: Jerry Vail, ESAT Team Manager
FROM: Terry Stumph, ESAT Regional Project Officer

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9/18/92
[Signature]

For Completion by EPA

[] Request for Unvalidated Data Summary Report (Table 1A) [] On Disk
[X] Request for Data Validation

Program: [X] \$F T10-034 [] Non-\$F T10-035

Lab Pacific Analytical Inc. Case # 18609 SAS # _____ SDG # 4L326

Tracking Dates

Data Package Received at Region 9:

Table 1A/Validation Requested:

Date Due:

Table 1A/Data Validation Report Received:

Days Late:

Completed and Sent to RPM/PM:

9/18/92
9/18/92
10/9/92
1/1
1/1
1/1

EPA Work-Unit Requestor: E. MC Delee

For Completion by ESAT

(Please complete and return this form with the completed task.)

Site Waste Disposal, Inc.

Site ID # _____

Analyses RAS -OR

Project \$F

Memo # 03

Matrix W Number 15

List the Sample Numbers:

YL326 → YL329, YL331 → YL341

Describe the Analyses:

LOW LEVEL for RAS Volatiles

Blanks: YL340, YL341 {EB}

Background: none

Date(s) Sampled:

8/11-13 and 17/92

Duplicates: YL330 + YL326, YL339 + YL329

EPA Project Officer/Mail Code: Kay Lawrence

Sampler/Agency: Kathy Baylor / EPA / H-7-2

Date Table 1A/Validation Assigned:

Date Table 1A/Validation Completed:

Date Table 1A/Validation Sent to EPA:

Reviewer/Staff: Lisa Hamsiak

9/18/92

9/24/92

10/9/92

Due: 10/9/92

9/18/92

10/5/92

10/6/92

LOE Hours Charged 9.5

ESAT Task Manager Carolyn Studeny

Comments Target volatile analytes reported for the samples were
flagged as tentatively identified as no mass spectra were included in
the data package.

Please indicate if the laboratory did not comply with the contract,
and/or if the SAS request was not adequate.

7-1
ESAT/ICF RECEIVED SEP 18 1992



ICF TECHNOLOGY INCORPORATED

OCT 01 1992

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

THROUGH: Roseanne Sakamoto *RS*
Environmental Protection Specialist
Quality Assurance Management Section, (P-3-2)

FROM: *CS* Carolyn Studeny
Senior Organic Data Reviewer
Environmental Services Assistance Team (ESAT)

DATE: September 25, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S61 Memo #02
SDG NO.:	YL326
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Semivolatiles
SAMPLE NO.:	15 Water Samples (In Case Summary)
COLLECTION DATE:	August 11 through 13, 1992
REVIEWER:	Lisa Hanusiak ESAT/ICF Technology, Inc.

If there are any questions, please contact Carolyn Studeny at (415) 882-3184.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)

TPO: [X]FYI []Attention []For Action

YD

Data Validation Report

Case No.: LV2S61 Memo #02
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.
Date: September 25, 1992

I. Case Summary

SAMPLE INFORMATION:

BNA Sample Numbers: YL326 through YL329 and YL331 through YL341
Concentration and Matrix: Low Level Water
Analysis: RAS Semivolatiles
SOW: 3/90
Collection Date: August 11 through 13, 1992
Sample Receipt Date: August 13 and 14, 1992
Extraction Date: August 15 and 17, 1992
Analysis Date: August 20 and 24, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): None
Equipment Blanks (EB): YL340 and YL341
Background Samples (BG): None
Field Duplicates (D1): YL326/YL338
(D2): YL329/YL339

METHOD BLANKS AND ASSOCIATED SAMPLES:

WBLK1: YL327, YL328, YL331, YL332, YL334, YL337 and YL341
WBLK2: YL326, YL326MS, YL326MSD, YL329, YL333, YL335, YL336 and YL338 through YL340

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers
1C: Tentatively Identified Compounds
2: Sample Quantitation Limits of Target Compound List (TCL) Analytes

ADDITIONAL COMMENTS:

This report was prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," December, 1990 (6/91 Revision).

MS - Matrix Spike; MSD - Matrix Spike Duplicate

ESAT-QA-9A-7024/LLV2S612.RPT

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II. Validation Summary

	BNA	
	Acceptable/Comment	
HOLDING TIMES	[Y]	[B]
GC/MS TUNE/GC PERFORMANCE	[Y]	[]
CALIBRATIONS	[Y]	[]
FIELD QC	[Y]	[]
LABORATORY BLANKS	[N]	[A]
SURROGATES	[Y]	[]
MATRIX SPIKE/DUPLICATES	[Y]	[]
INTERNAL STANDARDS	[Y]	[]
COMPOUND IDENTIFICATION	[Y]	[]
COMPOUND QUANTITATION	[Y]	[]
SYSTEM PERFORMANCE	[Y]	[C]

N/A - Not Applicable

III. Validity and Comments

- A. Due to laboratory contamination problems, the results reported in Table 1A for the following analytes are estimates (J) and usable for limited purposes only:

- Butylbenzylphthalate in sample number YL329
- bis(2-Ethylhexyl)phthalate in sample numbers YL329, YL334 and YL337

Although not detected in any of the method blanks or equipment blanks, phthalates have historically been found as common laboratory contaminants. It is the opinion of the reviewer that the butylbenzylphthalate and bis(2-ethylhexyl)phthalate found in the samples listed above are artifacts.

The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased, where appropriate, according to the blank qualification rules.

- B. The 40 CFR 136 technical holding times were not exceeded for any of the samples analyzed.
- C. All other results are considered valid and usable for all purposes. All other quality control criteria have been met and are considered acceptable.

Page 1 of 2

Analysis Type: Low Level Water Samples
for RAS Semivolatiles

Station Location Sample I.D.	GW-01 YL326 D1			GW-02 YL327			GW-04 YL328			GW-07 YL329 D2			GW-10 YL331			GW-11 YL332			GW-23 YL333		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Butylbenzylphthalate bis(2-Ethylhexyl)phthalate	10 U 10 U			10 U 10 U			10 U 10 U			10 U 11 U	J J	A A	10 U 10 U			10 U 10 U			10 U 10 U		
Station Location Sample I.D.	GW-24 YL334			GW-28 YL335			GW-26 YL336			GW-30 YL337			GW-12 YL338 D1			GW-17 YL339 D2			GW-32 YL340 EB		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Butylbenzylphthalate bis(2-Ethylhexyl)phthalate	10 U 10 U	J	A	10 U 10 U			10 U 10 U			10 U 10 U	J	A	10 U 10 U			10 U 10 U			10 U 10 U		

BG-Background Sample

TABLE 1A*

Page 2 of 2

Date: September 25, 1992

Analysis Type: Low Level Water Samples
for RAS Semivolatiles

Concentration in ug/L

[illegible]

NA-Not Analyzed

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. Compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 1C
Detected Tentatively Identified Compounds (TICs)

Case No.: LV2S61 Memo #02
 Site: Waste Disposal, Inc.
 Laboratory: Region IX, Las Vegas
 Reviewer: Lisa Hanusiak
 ESAT/ICF Technology, Inc.
 Date: September 25, 1992

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating* (Remarks)</u>
YL326	None Found	BNA			
YL327	None Found	BNA			
YL328	None Found	BNA			
YL329	Unknown	BNA	9.62	4 J	
	Unknown	BNA	11.25	4 J	
YL331	Unknown	BNA	8.82	4 J	
	Unknown	BNA	11.25	5 J	
	Unknown	BNA	29.32	20 J	
YL332	None Found	BNA			
YL333	Unknown	BNA	8.82	9 J	
	Unknown	BNA	9.63	3 J	
	Unknown	BNA	11.27	30 J	
YL334	None Found	BNA			
YL335	Unknown	BNA	11.27	7 J	
YL336	Unknown	BNA	8.83	4 J	
	Unknown	BNA	11.27	40 J	
YL337	None Found	BNA			
YL338	None Found	BNA			
YL339	None Found	BNA			
YL340	None Found	BNA			

J (estimated): Value is usable for limited purposes.

*Rating codes--probability that identification is correct:

A - High B - Moderate C - Low

TABLE 1C
(continued)

<u>Sample Number</u>	<u>Compound</u>	<u>Fraction</u>	<u>Retention Time, min.</u>	<u>Concentration (ug/L)</u>	<u>Rating^a (Remarks)</u>
YL341	None Found	BNA			

J (estimated): Value is usable for limited purposes.

^aRating codes--probability that identification is correct:

A - High

B - Moderate

C - Low

TABLE 2
Sample Quantitation Limits

Case No.: LV2S61 Memo #02
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Lisa Hanusiak
ESAT/ICF Technology, Inc.
Date: September 25, 1992

<u>Semivolatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Phenol	10		
bis(2-Chloroethyl)ether	10		
2-Chlorophenol	10		
1,3-Dichlorobenzene	10		
1,4-Dichlorobenzene	10		
1,2-Dichlorobenzene	10		
2-Methylphenol	10		
2,2'-oxybis(1-Chloropropane)	10		
4-Methylphenol	10		
N-Nitroso-di-N-propylamine	10		
Hexachloroethane	10		
Nitrobenzene	10		
Isophorone	10		
2-Nitrophenol	10		
2,4-Dimethylphenol	10		
bis(2-Chloroethoxy)methane	10		
2,4-Dichlorophenol	10		
1,2,4-Trichlorobenzene	10		
Naphthalene	10		
4-Chloroaniline	10		
Hexachlorobutadiene	10		
4-Chloro-3-methylphenol	10		
2-Methylnaphthalene	10		
Hexachlorocyclopentadiene	10		
2,4,6-Trichlorophenol	10		
2,4,5-Trichlorophenol	25		
2-Chloronaphthalene	10		
2-Nitroaniline	25		
Dimethylphthalate	10		
Acenaphthylene	10		
3-Nitroaniline	25		

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

<u>Semivolatile Compounds</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
Acenaphthene	10		
2,4-Dinitrophenol	25		
4-Nitrophenol	25		
Dibenzofuran	10		
2,4-Dinitrotoluene	10		
2,6-Dinitrotoluene	10		
Diethylphthalate	10		
4-Chlorophenyl-phenylether	10		
Fluorene	10		
4-Nitroaniline	25		
4,6-Dinitro-2-methylphenol	25		
N-Nitrosodiphenylamine	10		
4-Bromophenyl-phenylether	10		
Hexachlorobenzene	10		
Pentachlorophenol	25		
Phenanthrene	10		
Anthracene	10		
Carbazole	10		
Di-n-butylphthalate	10		
Fluoranthene	10		
Pyrene	10		
Butylbenzylphthalate	10		
3,3'-Dichlorobenzidine	10		
Benzo(a)anthracene	10		
bis(2-Ethylhexyl)phthalate	10		
Chrysene	10		
Di-n-octyl phthalate	10		
Benzo(b)fluoranthene	10		
Benzo(k)fluoranthene	10		
Benzo(a)pyrene	10		
Indeno(1,2,3-cd)pyrene	10		
Dibenz(a,h)anthracene	10		
Benzo(g,h,i)perylene	10		

Q - Qualifier

C - Comment

TABLE 2
(cont'd)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Semivolatiles</u>
YL326	1.0
YL327	1.0
YL328	1.0
YL329	1.0
YL331	1.0
YL332	1.0
YL333	1.0
YL334	1.0
YL335	1.0
YL336	1.0
YL337	1.0
YL338	1.0
YL339	1.0
YL340	1.0
YL341	1.0
Method Blanks	1.0

TPO: [X]FYI []Attention []For Action

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S61 Memo #02 LABORATORY Region IX, Las Vegas

SDG NO. YL326 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE September 25, 1992

NO. OF SAMPLES 15 WATER _____ SOIL _____ OTHER _____

REVIEWER [] ESD [X] ESAT [] OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	<u>0</u>	_____	_____
2. GC-MS TUNE/GC PERFORMANCE	_____	<u>0</u>	_____	_____
3. INITIAL CALIBRATIONS	_____	<u>0</u>	_____	_____
4. CONTINUING CALIBRATIONS	_____	<u>0</u>	_____	_____
5. FIELD QC	_____	<u>0</u>	_____	_____
6. LABORATORY BLANKS	_____	<u>X</u>	_____	_____
7. SURROGATES	_____	<u>0</u>	_____	_____
8. MATRIX SPIKE/DUPLICATES	_____	<u>0</u>	_____	_____
9. REGIONAL QC ("F" - not applicable)	_____	<u>F</u>	_____	_____
10. INTERNAL STANDARDS	_____	<u>0</u>	_____	_____
11. COMPOUND IDENTIFICATION	_____	<u>0</u>	_____	_____
12. COMPOUND QUANTITATION	_____	<u>0</u>	_____	_____
13. SYSTEM PERFORMANCE	_____	<u>0</u>	_____	_____
14. OVERALL ASSESSMENT	_____	<u>X</u>	_____	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

D-23



ICF TECHNOLOGY INCORPORATED

OCT 01 1992

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section, (H-7-2)

THROUGH: Roseanne Sakamoto *RS*
Environmental Protection Specialist
Quality Assurance Management Section, (P-3-2)

FROM: *CS* Carolyn Studeny
Senior Organic Data Reviewer
Environmental Services Assistance Team (ESAT)

DATE: September 22, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S61 Memo #01
SDG NO.:	YL326
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Pesticides/PCBs
SAMPLE NO.:	15 Water Samples (In Case Summary)
COLLECTION DATE:	August 11 through 13, 1992
REVIEWER:	Lisa Hanusiak ESAT/ICF Technology, Inc.

If there are any questions, please contact Carolyn Studeny at (415) 882-3184.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)

TPO: [X]FYI []Attention []For Action

D-24

Data Validation Report

Case No.: LV2S61 Memo #01
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.
Date: September 22, 1992

I. Case Summary

SAMPLE INFORMATION:

PEST Sample Numbers: YL326 through YL329 and YL331 through YL341
Concentration and Matrix: Low Level Water
Analysis: RAS Pesticides/PCBs
SOW: 3/90
Collection Date: August 11 through 13, 1992
Sample Receipt Date: August 13 and 14, 1992
Extraction Date: August 16 and 18, 1992
Analysis Date: September 1 and 2, 1992

FIELD QC:

Trip Blanks (TB): None
Field Blanks (FB): None
Equipment Blanks (EB): YL340 and YL341
Background Samples (BG): None
Field Duplicates (D1): YL326/YL338
(D2): YL329/YL339

METHOD BLANKS AND ASSOCIATED SAMPLES:

PBLK1: YL326, YL329, YL333, YL335, YL336, YL336MS,
YL336MSD, YL338, YL339 and YL340
PBLK2: YL327, YL328, YL331, YL332, YL334, YL337 and
YL341

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers
2: Sample Quantitation Limits of Target Compound
List (TCL) Analytes

ADDITIONAL COMMENTS:

This report was prepared according to the EPA document "Laboratory Data Validation Functional Guidelines For Evaluating Organic Analyses," April 11, 1985.

II. Validation Summary

	PEST Acceptable/Comment	
HOLDING TIMES	[Y]	[B]
GC/MS TUNE/GC PERFORMANCE	[Y]	[]
CALIBRATIONS	[Y]	[]
FIELD QC	[Y]	[]
LABORATORY BLANKS	[Y]	[]
SURROGATES	[N]	[A]
MATRIX SPIKE/DUPLICATES	[Y]	[]
INTERNAL STANDARDS	[N/A]	[]
COMPOUND IDENTIFICATION	[Y]	[]
COMPOUND QUANTITATION	[Y]	[]
SYSTEM PERFORMANCE	[Y]	[C]

N/A - Not Applicable

III. Validity and Comments

- A. Due to surrogate recovery problems, the quantitation limits for the following analytes are estimates (J) and usable for limited purposes only (see Table 2):

- All target pesticides/PCBs in sample numbers YL326, YL328, YL329, YL335, YL336, YL338 and YL341

Recoveries below the 60-150% QC advisory validation criteria were observed for the surrogate, decachlorobiphenyl (DCB), on both the primary and confirmation columns as follows:

<u>SAMPLE NUMBER</u>	<u>PERCENT RECOVERY</u>	
	<u>DCB1</u>	<u>DCB2</u>
YL326	49	50
YL328	42	45
YL329	50	52
YL335	36	37
YL336	46	48
YL338	43	46
YL341	47	53

The quantitation limits for the samples listed above are questionable and false negatives may exist.

- B. The 40 CFR 136 technical holding times were not exceeded for any of the samples analyzed.
- C. All other results are considered valid and usable for all purposes. All other quality control criteria have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 2

TABLE 1A*

Case No.: LV2S61 Memo #01

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.

Date: September 22, 1992

Analysis Type: Low Level Water Samples
for RAS Pesticides/PCBs

Concentration in ug/L

Sample Location Sample I.D.	GW-01 YL326 D1			GW-02 YL327			GW-04 YL328			GW-07 YL329 D2			GW-10 YL331			GW-11 YL332			GW-23 YL333		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
No Pesticides/PCBs detected	ND			ND			ND			ND			ND			ND			ND		
Sample Location Sample I.D.	GW-24 YL334			GW-28 YL335			GW-26 YL336			GW-30 YL337			GW-12 YL338 D1			GW-17 YL339 D2			GW-32 YL340 EB		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
No Pesticides/PCBs detected	ND			ND			ND			ND			ND			ND			ND		

*The requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

ND-Not Detected

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

ANALYTICAL RESULTS

Page 2 of 2

TABLE 1A*

Case No.: LV2S61 Memo #01

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Lisa Hanusiak, ESAT/ICF Technology, Inc.

Date: September 22, 1992

Analysis Type: Low Level Water Samples
for RAS Pesticides/PCBs

Concentration in ug/L

Sample Location Sample I.D.	GW-33 YL341 EB			Method Blank PBLK1			Method Blank PBLK2											
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
No Pesticides/PCBs detected	ND			ND			ND											
Sample Location Sample I.D.																		
Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com

*The requested analytes were analyzed for, but "Not Detected". The Sample Quantitation Limits are listed in Table 2.

Val-Validity Refer to Data Qualifiers in Table 1B.

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limits

ND-Not Detected

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank

BG-Background Sample

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicates that the data are acceptable both qualitatively and quantitatively.

- U Indicates that the compound is not detected above the concentration listed.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are considered estimates and usable for limited purposes.
- J Results are estimated and the data are valid for limited purposes. The results are qualitatively acceptable.
- N Presumptive evidence of the presence of the material. Compound identification is considered to be tentative. The data are usable for limited purposes.
- R Results are rejected and data are invalid for all purposes.

TABLE 2
Sample Quantitation Limits

Case No.: LV2S61 Memo #01
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Lisa Hanusiak
ESAT/ICF Technology, Inc.
Date: September 22, 1992

<u>Pesticides/PCBs</u>	<u>Units. ug/L</u>	<u>Q</u>	<u>C</u>
alpha-BHC	0.05	J	A
beta-BHC	0.05	J	A
delta-BHC	0.05	J	A
gamma-BHC (Lindane)	0.05	J	A
Heptachlor	0.05	J	A
Aldrin	0.05	J	A
Heptachlor epoxide	0.05	J	A
Endosulfan I	0.05	J	A
Dieldrin	0.1	J	A
4,4'-DDE	0.1	J	A
Endrin	0.1	J	A
Endosulfan II	0.1	J	A
4,4'-DDD	0.1	J	A
Endosulfan sulfate	0.1	J	A
4,4'-DDT	0.1	J	A
Methoxychlor	0.5	J	A
Endrin ketone	0.1	J	A
Endrin aldehyde	0.1	J	A
alpha-Chlordane	0.05	J	A
gamma-Chlordane	0.05	J	A
Toxaphene	5	J	A
Aroclor-1016	1	J	A
Aroclor-1221	2	J	A
Aroclor-1232	1	J	A
Aroclor-1242	1	J	A
Aroclor-1248	1	J	A
Aroclor-1254	1	J	A
Aroclor-1260	1	J	A

Q - Qualifier
C - Comment

TABLE 2
(Continued)

To calculate the sample quantitation limits, multiply CRQL by the following factors:

<u>Sample No.</u>	<u>Pesticides/PCBs</u>
YL326	1.0
YL327	1.0
YL328	1.0
YL329	1.0
YL331	1.0
YL332	1.0
YL333	1.0
YL334	1.0
YL335	1.0
YL336	1.0
YL337	1.0
YL338	1.0
YL339	1.0
YL340	1.0
YL341	1.0
Method Blanks	1.0

TPO: ☒ FYF ☐ Attention ☐ For Action

Region IX

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S61 Memo #01 LABORATORY Region IX. Las Vegas

SDG NO. YL326 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE September 22, 1992

NO. OF SAMPLES 15 WATER _____ SOIL _____ OTHER _____

REVIEWER ☐ ESD ☒ ESAT ☐ OTHER, CONTRACT/CONTRACTOR _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	_____	<u>0</u>	_____
2. GC-MS TUNE/GC PERFORMANCE	_____	_____	<u>0</u>	_____
3. INITIAL CALIBRATIONS	_____	_____	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>0</u>	_____
5. FIELD QC	_____	_____	<u>0</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>0</u>	_____
7. SURROGATES	_____	_____	<u>M</u>	_____
8. MATRIX SPIKE/DUPLICATES	_____	_____	<u>0</u>	_____
9. REGIONAL QC ("F" - not applicable)	_____	_____	<u>F</u>	_____
10. INTERNAL STANDARDS	_____	_____	<u>F</u>	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>0</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>0</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>0</u>	_____
14. OVERALL ASSESSMENT	_____	_____	<u>M</u>	_____

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ACTION ITEMS: _____

AREAS OF CONCERN: The quantitation limits in several of the samples were estimated due to low surrogate recoveries.

D-32



ICF TECHNOLOGY INCORPORATED

NOV 12 1992

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

THROUGH: Roseanne Sakamoto *KPL for ES*
Environmental Protection Specialist
Quality Assurance Management Section (P-3-2)

FROM: Margie D. Weiner *MDW*
Inorganic Data Reviewer
Environmental Services Assistance Team (ESAT)

DATE: October 30, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S61 Memo #04
SDG NO.:	MYJ602
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Total Metals
SAMPLE NO.:	In Case Summary
COLLECTION DATE:	August 11, 12, and 13, 1992
REVIEWER:	Chris Davis, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Brenda Bettencourt
Steve Remaley, TPO USEPA Region IX

TPO: []FYI [X]For Attention []For Action

D-33

Data Validation Report

Case No.: LV2S61 Memo #04
Site: Waste Disposal, Inc.
Laboratory: Region IX, Las Vegas
Reviewer: Chris Davis, ESAT/ICF
Date: October 30, 1992

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: MYJ602, MYJ604, MYJ605, MYJ607, MYJ611,
MYJ613, MYJ615, MYJ617, MYJ619, MYJ621,
MYJ623, MYJ625, MYJ627, MYJ629, and MYJ631

COLLECTION DATE: August 11, 12, and 13, 1992
SAMPLE RECEIPT DATE: August 13 and 14, 1992

CONCENTRATION & MATRIX: 13 Low Concentration Groundwater Samples and
2 Low Concentration Water Samples

FIELD QC: Field Blanks (FB): None
Equipment Blanks (EB): MYJ629 and MYJ631
Background Samples (BG): None
Duplicates (D1): MYJ602 and MYJ625
(D2): MYJ607 and MYJ627

LABORATORY QC: Matrix Spike: MYJ621
Duplicates: MYJ621
ICP Serial Dilution: MYJ621

ANALYSIS: RAS Total Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	September 24, 1992	September 25, 1992
GFAA: Arsenic	September 9, 1992	October 7, 1992
Lead	September 9, 1992	October 6, 1992
Selenium	September 9, 1992	October 2 and 8, 1992
Thallium	September 9, 1992	October 7, 1992
Mercury	September 1, 1992	September 1, 1992

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. Laboratory blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work for March, 1990, and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

D-34

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	
2. Sample Holding Times	Yes	F
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	B
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	E
10. GFAA QC Analysis	No	C
a. Duplicate Injections		
b. Analytical Spikes		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	A,D
13. Sample Result Verification	Yes	G

N/A - Not Applicable

III. Validity and Comments

- A. The following results are estimated and are considered usable for limited purposes. The results are flagged "J" in Table 1A.

- All results above the Instrument Detection Limit but below the Contract Required Detection Limit (denoted with an "L" qualifier)

Results above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are estimated and are considered usable for limited purposes because of accuracy problems. The results are flagged "J" in Table 1A.

- Aluminum in samples MYJ602, MYJ604, MYJ605, MYJ607, MYJ611, MYJ615, MYJ619, MYJ621, MYJ623, MYJ625, MYJ627, and MYJ631
- Lead, mercury, and selenium in all of the samples

The matrix spike recovery results for aluminum, lead, mercury, and selenium in QC sample number MYJ621 did not meet the 75-125% criteria for accuracy. The percent recovery and percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

<u>Analyte</u>	<u>MYJ621 % Recovery</u>	<u>MYJ621 % Bias</u>
Aluminum	150.5	+50.5
Lead	66.0	-44.0
Mercury	70.0	-30.0
Selenium	-74.1	-174.1

Results above the IDL are considered quantitatively uncertain. These matrix spike recovery results show an analytical deficiency, which may be related to matrix interferences. The results reported for aluminum in the samples listed above may be biased high. The results reported for lead, mercury, and selenium in the samples listed above may be biased low, and where non-detected, false negatives may exist.

Note that for selenium, matrix spike sample MYJ621(S) was analyzed undiluted and was quantitated from the calibration curve, whereas sample MYJ621 was reanalyzed at a 5X dilution due to a low analytical spike recovery when analyzed undiluted (analytical spikes are not required for matrix spike samples). All of the other samples, with the exception of equipment blanks MYJ629 and MYJ631, also required reanalysis at a 5X dilution or by the Method of Standard Addition (MSA). Reanalysis at a 5 or 10 fold dilution and quantitation by MSA are analytical methods which minimize the effects of matrix interference. As the equipment blanks do not contain high concentrations of interferences, and as all of the other samples were reanalyzed by methods to reduce matrix interference, the severe low bias indicated by the matrix spike recovery for selenium should not be as pronounced in the samples.

A post-digestion spike recovery result of 102.9% was obtained for aluminum in QC sample number MYJ621.

C. The following results are estimated and are considered usable for limited purposes because of accuracy problems. The results are flagged "J" in Table 1A.

- Arsenic in sample MYJ617
- Lead in samples MYJ602, MYJ604, MYJ607, MYJ611, MYJ613, MYJ615, MYJ617, MYJ619, MYJ621, MYJ623, MYJ625, and MYJ627
- Selenium in sample MYJ629
- Thallium in samples MYJ602, MYJ604, MYJ605, MYJ607, MYJ611, MYJ613, MYJ615, MYJ617, MYJ619, MYJ621, MYJ623, MYJ625, and MYJ627

Arsenic, lead, selenium, and thallium were analyzed by the Graphite Furnace Atomic Absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The analytical spike recovery results for these analytes in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	MYJ617	79.5	-20.5
Lead	MYJ602	44.3	-55.7
	MYJ604	60.7	-39.3
	MYJ607	65.1	-34.9
	MYJ611	56.9	-43.1
	MYJ613	55.4	-44.6
	MYJ615	65.8	-34.2
	MYJ617	58.6	-41.4
	MYJ619	68.4	-31.6
	MYJ621	60.8	-39.2
	MYJ623	62.0	-38.0
	MYJ625	58.8	-41.2
	MYJ627	64.2	-35.8
Selenium	MYJ629	81.4	-18.6
Thallium	MYJ602	71.6	-28.4
	MYJ604	80.5	-19.5
	MYJ605	81.1	-18.9
	MYJ607	79.9	-20.1
	MYJ611	79.5	-20.5
	MYJ613	78.0	-22.0
	MYJ615	77.3	-22.7
	MYJ617	82.7	-17.3
	MYJ619	71.3	-28.7
	MYJ621	78.0	-22.0
	MYJ623	82.3	-17.7
	MYJ625	79.0	-21.0
	MYJ627	81.0	-19.0

The post-digestion spike recovery results for arsenic, lead, selenium, and thallium in the samples listed above show an analytical deficiency, most likely related to matrix interferences. Results above the IDL are considered quantitatively uncertain. The detection limits reported for arsenic, selenium, and thallium in the samples listed above, and for lead in samples MYJ604, MYJ607, MYJ613, MYJ615, MYJ617, and MYJ627 may be biased low, and false negatives may exist. The results for lead in samples MYJ602, MYJ611, MYJ619, MYJ621, MYJ623, and MYJ625 may be biased low.

- D. Due to the dilution of the analytical spike, the quantitation limit for the analyte shown below has been raised.

- Selenium in samples MYJ604 and MYJ615

Selenium was analyzed by the Graphite Furnace AA technique, which requires the analysis of analytical spikes. Analytical spikes are post-digestion spikes prepared prior to analysis by adding a known quantity of the analyte to an aliquot of the digested sample. The samples listed above were diluted by a factor of five because the spike recovery obtained in the original analysis was less than 40%. The low percent recovery obtained for selenium may be due to chemical or physical interferences. Dilution of the samples is performed to reduce any matrix interferences which may be present. Consequently, the IDL and CRDL were raised by a factor of five for samples MYJ604 and MYJ615 due to the five fold dilutions, causing the results for these samples to fall between the MDL and CRDL (Please refer to Comment A.).

- E. A 45.0 Relative Percent Difference (RPD) was obtained for aluminum, a 37.2 RPD was obtained for iron, and a 27.0 RPD was obtained for manganese in the analysis of field duplicate pair samples MYJ607 and MYJ627. The analysis of field duplicate samples is a measure of both field and analytical precision. The results are expected to vary more than laboratory duplicates (± 20 criteria for precision) since sampling variability is included in the measurement. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known. There were no precision problems with field duplicate pair MYJ602 and MYJ625.
- F. The 40 CFR 136 (Clean Water Act) technical holding times were not exceeded for any of the samples. There were no holding time problems.
- G. All of the other results are considered usable for all purposes. All QC requirements, other than those discussed above, have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 3

TABLE 1A

Case No.: LV2S61 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Christopher Davis, ESAT/ICF Technology, Inc.

Date: October 30, 1992

Analysis Type: Low Concentration Groundwater
Samples for RAS Total Metals

Concentration in ug/L

Sample matrix Station Location Sample I.D. Date of Collection	Groundwater GW-01 MYJ602 D1 08-11-92			Groundwater GW-02 MYJ604 08-12-92			Groundwater GW-04 MYJ605 08-13-92			Groundwater GW-07 MYJ607 D2 08-12-92			Groundwater GW-10 MYJ611 08-13-92			Groundwater GW-11 MYJ613 08-13-92			Groundwater GW-23 MYJ615 08-12-92		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	9590	J	B	1690	J	B	22000	J	B	1960	J	BE	3700	J	B	26.3	U		3340	J	B
Antimony	14.8	L	J	11.8	U		11.8	U		11.8	U		11.8	U		11.8	U		11.8	U	
Arsenic	4.7	L	J	2.2	U		5.8	L	J	2.2	U		2.2	U		2.2	U		2.2	U	
Barium	149	L	J	40.7	L	J	286			58.2	L	J	108	L	J	7.5	U		67.4	L	J
Beryllium	1.6	L	J	1.2	L	J	1.8	L	J	1.1	L	J	1.2	L	J	1.3	L	J	1.2	L	J
Cadmium	1.1	U		1.1	U		1.1	U		1.1	U		1.1	U		1.1	U		1.1	U	
Calcium	294000			220000			197000			219000			233000			273000			231000		
Chromium	19.9			7.9	L	J	39.6			6.5	L	J	5.3	L	J	3.1	L	J	6.4	L	J
Cobalt	10.7	L	J	2.6	U		20.0	L	J	2.6	U		6.9	L	J	2.6	U		2.6	L	J
Copper	20.5	L	J	5.5	L	J	42.7			6.3	L	J	9.5	L	J	3.6	L	J	9.5	L	J
Iron	15000			2900			35000			3160		E	5790			145			4900		
Lead	2.4	L	J	1.8	U	J	17.7	J	B	1.8	U	J	2.1	L	J	1.8	U	J	1.8	U	J
Magnesium	94000			65000			68100			69200			68400			81500			67300		
Manganese	430			90.1			687			256		E	2430			55.4			693		
Mercury	0.30	U	J	0.30	U	J	0.30	J	B	0.30	U	J	0.30	U	J	0.30	U	J	0.40	J	B
Nickel	19.7	L	J	9.7	U		32.0	L	J	9.7	U		9.7	U		9.7	U		12.9	L	J
Potassium	8160			4970	L	J	9240			5030			5970			6170			4890	L	J
Selenium	38.2	J	B	20.1	L	J	21.3	J	B	4.0	J	B	30.2	J	B	39.8	J	B	12.2	L	J
Silver	2.7	U		2.7	U		2.7	U		2.7			2.7	U		2.7	U		2.7	U	
Sodium	155000			119000			125000			170000			134000			151000			128000		
Thallium	1.4	U	J	1.4	U	J	1.4	U	J	1.4	U	J	1.4	U	J	1.4	U	J	1.4	U	J
Vanadium	30.3	L	J	7.6	L	J	60.3			8.2	L	J	12.3	L	J	4.7	L	J	11.4	L	J
Zinc	40.9			12.1	L	J	111			12.1	L	J	22.8			23.7			16.0	L	J

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 2 of 3

TABLE 1A

Case No.: LV2861 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Christopher Davis, ESAT/ICF Technology, Inc.

Date: October 30, 1992

Analysis Type: Low Concentration Groundwater
Samples for RAS Total Metals

Concentration in ug/L

Sample matrix	Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Groundwater			Water		
Station Location	GW-24			GW-28			GW-26			GW-30			GW-12			GW-17			GW-32		
Sample I.D.	MYJ617			MYJ619			MYJ621			MYJ623			MYJ625 D1			MYJ627 D2			MYJ629 EB		
Date of Collection	08-12-92			08-11-92			08-11-92			08-12-92			08-11-92			08-12-92			08-11-92		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	26.3 U			31300 J	B		7280 J	B		53.4 L J	AB		10200 J	B		1240 J	BE		26.3 U		
Antimony	11.8 U			14.6 L J	A		11.8 U			11.8 U			23.5 L J	A		11.8 U			11.8 U		
Arsenic	2.2 U J	C		6.9 L J	A		2.6 L J	A		2.2 U			4.7 L J	A		2.2 U			2.2 U		
Barium	7.5 U			308			199 L J	A		33.1 L J	A		158 L J	A		41.7 L J	A		7.5 U		
Beryllium	1.3 L J	A		2.3 L J	A		1.3 L J	A		0.87 L J	A		1.7 L J	A		1.1 L J	A		0.27 U		
Cadmium	1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U		
Calcium	288000			277000			250000			156000			292000			220000			1650 L J	A	
Chromium	3.9 L J	A		49.1			11.5			2.1 U			20.0			3.3 L J	A		2.1 U		
Cobalt	2.6 U			29.2 L J	A		12.4 L J	A		2.6 U			10.7 L J	A		2.6 U			2.6 U		
Copper	2.4 L J	A		64.4			19.0 L J	A		2.8 L J	A		22.1 L J	A		4.3 L J	A		2.8 L J	A	
Iron	69.1 L J	A		46600			11900			208			15900			2170	E		53.5 L J	A	
Lead	1.8 U J	BC		6.6 J	BC		3.9 J	BC		2.2 L J	ABC		3.5 J	BC		1.8 U J	BC		1.8 U J	B	
Magnesium	80900			93000			75200			42700			92400			68600			361 L J	A	
Manganese	9.4 L J	A		1050			1010			19.7			449			195	E		12.3 L J	A	
Mercury	0.30 U J	B		0.30 U J	B		0.60 J	B		0.30 U J	B		0.30 U J	B		0.30 U J	B		0.30 U J	B	
Nickel	9.7 U			47.8			17.8 L J	A		9.7 U			11.0 L J	A		9.7 U			9.7 U		
Potassium	5550			11700			6930			4630 L J	A		8140			5010			537 U		
Selenium	52.0 J	B		46.0 J	B		30.5 J	B		30.5 J	B		42.4 J	B		24.1 J	B		2.3 U J	BC	
Silver	2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U		
Sodium	124000			143000			150000			78900			152000			169000			947 L J	A	
Thallium	1.4 U J	C		1.4 U J	C		1.4 U J	C		1.4 U J	C		1.4 U J	C		1.4 U J	C		1.4 U		
Vanadium	3.9 L J	A		88.9			22.6 L J	A		3.9 L J	A		31.2 L J	A		7.2 L J	A		1.6 U		
Zinc	8.1 U			133			41.5			17.2 L J	A		44.3			8.1 U			8.1 U		

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 3 of 3

TABLE 1A

Case No.: LV2S61 Memo #04

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Christopher Davis, ESAT/ICF Technology, Inc.

Date: October 30, 1992

Analysis Type: Low Concentration Groundwater
Samples for RAS Total Metals

Concentration in ug/L

Sample matrix	Water			LAB BLANK			IDL			CRDL								
Station Location	GW-33																	
Sample I.D.	MYJ631 EB																	
Date of Collection	08-13-92																	
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	30.3 L J		AB	26.3 U			26.3			200								
Antimony	11.8 U			11.8 U			11.8			60.0								
Arsenic	2.2 U			2.2 U			2.2			10.0								
Barium	7.5 U			7.5 U			7.5			200								
Beryllium	0.27 U			0.27 U			0.27			5.0								
Cadmium	1.1 U			1.1 U			1.1			5.0								
Calcium	1420 L J		A	1190 L J		A	128			5000								
Chromium	2.1 U			2.1 U			2.1			10.0								
Cobalt	2.6 U			2.6 U			2.6			50.0								
Copper	1.5 U			2.8 L J		A	1.5			25.0								
Iron	44.3 L J		A	46.0 L J		A	8.1			100								
Lead	2.0 L J		AB	1.8 U			1.8			3.0								
Magnesium	309 L J		A	259 L J		A	198			5000								
Manganese	11.4 L J		A	10.2 L J		A	0.70			15.0								
Mercury	0.30 U J		B	0.30 U			0.30			0.20								
Nickel	9.7 U			9.7 U			9.7			40.0								
Potassium	537.0 U			537 U			537			5000								
Selenium	2.3 U J		B	2.3 U			2.3			5.0								
Silver	2.7 U			2.7 U			2.7			10.0								
Sodium	853 L J		A	653 L J		A	285			5000.0								
Thallium	1.40 U			1.4 U			1.4			10.0								
Vanadium	1.6 U			1.6 U			1.6			50.0								
Zinc	8.1 U			8.1 U			8.1			20.0								

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and considered usable for limited purposes.
- J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample. Results are estimated and the data considered usable for limited purposes. Results are qualitatively acceptable.
- R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte. Results are rejected and data are unusable for any purposes.
- UJ The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

TPO: [] FYI [X] For Attention [] For Action

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S61 Memo #04 LABORATORY Region IX, Las Vegas

SDG NO. MYJ602 SITE NAME Waste Disposal, Inc.

SOW NO. 3/90 REVIEW COMPLETION DATE October 30, 1992

REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Chris Davis

NO. OF SAMPLES 15 WATER SOIL OTHER

	ICP	AA	Hg	Other
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
2. CALIBRATION	<u>0</u>	<u>0</u>	<u> </u>	<u> </u>
3. BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>0</u>			
5. LABORATORY CONTROL SAMPLE (LCS)	<u>0</u>	<u>0</u>		<u> </u>
6. DUPLICATE ANALYSIS	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
7. MATRIX SPIKE ANALYSIS	<u>X</u>	<u>M</u>	<u>M</u>	<u> </u>
8. METHOD OF STANDARD ADDITION (MSA)		<u>0</u>		
9. ICP SERIAL DILUTION	<u>0</u>			
10. SAMPLE QUANTITATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
11. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
12. OTHER QC	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
13. OVERALL ASSESSMENT	<u>X</u>	<u>M</u>	<u>M</u>	<u> </u>

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

N/A - Not applicable.

TPO ATTENTION: The IDL for mercury is 0.3 ug/L and the CRDL is 0.2 ug/L.
The laboratory is unable to achieve the CRDL.

D-1/3



ICF TECHNOLOGY INCORPORATED

NOV 12 1992

MEMORANDUM

TO: Kay Lawrence
Remedial Project Manager
Enforcement Programs Section (H-7-2)

THROUGH: Roseanne Sakamoto *KPL for RS*
Environmental Protection Specialist
Quality Assurance Management Section (P-3-2)

FROM: Margie D. Weiner *MDW*
Inorganic Data Reviewer
Environmental Services Assistance Team (ESAT)

DATE November 2, 1992

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region IX review of the following analytical data:

SITE:	Waste Disposal, Inc.
EPA SITE ID NO:	C1
CASE/SAS NO.:	LV2S61 Memo #05
SDG NO.:	MYJ603
LABORATORY:	Region IX, Las Vegas
ANALYSIS:	RAS Dissolved Metals
SAMPLE NO.:	15 Water Samples (See Case Summary)
COLLECTION DATE:	August 11 through 13, 1992
REVIEWER:	Dina David, ESAT/ICF

If there are any questions, please contact Margie D. Weiner (ESAT/ICF) at (415) 882-3061.

Attachment

cc: Brenda Bettencourt, Chief, Laboratory Support Section (P-3-1)
Steve Remaley, TPO USEPA Region IX

TPO: []FYI [X]For Attention [X]For Action

D-44

Data Validation Report

Case No.: LV2S61 Memo #05
 Site: Waste Disposal, Inc.
 Laboratory: Region IX, Las Vegas
 Reviewer: Dina David, ESAT/ICF
 Date: November 2, 1992

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: MYJ603, MYJ606, MYJ608, MYJ612, MYJ614,
 MYJ616, MYJ618, MYJ620, MYJ622, MYJ624,
 MYJ626, MYJ628, MYJ630, MYJ632 and MYJ635

COLLECTION DATE: August 11 through 13, 1992
 SAMPLE RECEIPT DATE: August 13 and 14, 1992

CONCENTRATION & MATRIX: 15 Low Concentration Ground Water Samples

FIELD QC: Field Blanks (FB): None
 Equipment Blanks (EB): MYJ630 and MYJ632 *
 Background Samples (BG): None
 Duplicates (D1): MYJ603 and MYJ626
 (D2): MYJ608 and MYJ628

LABORATORY QC: Matrix Spike: MYJ622
 Duplicates: MYJ622 and MYJ628
 ICP Serial Dilution: MYJ622

ANALYSIS: RAS Dissolved Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	August 28, 1992	August 31, 1992
GFAA: Arsenic	August 28, 1992	September 21 and 22, 1992
Lead	August 28, 1992	September 23, 1992
Selenium	August 28, 1992	September 22, 1992 and October 15, 1992
Thallium	August 28, 1992	September 23, 1992
Mercury	September 8, 1992	September 10, 1992

The samples were filtered and acid preserved in the field. The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work for March, 1990, and the EPA Draft Document "Laboratory Data Validation Functional Guidelines For Evaluating Inorganic Analyses," October, 1989.

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	
2. Sample Holding Times	No	C
3. Calibration	No	A
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
4. Blanks	No	D
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	E
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	No	H
10. GFAA QC Analysis	* No	F
a. Duplicate Injections		
b. Analytical Spikes		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	B,G
13. Sample Result Verification	Yes	I

III. Validity and Comments

- A. The following result is rejected and is considered unusable for any purpose because of calibration blank contamination problems. The result is flagged "R" in Table 1A.

- Mercury in sample MYJ618

Sample results at the Instrument Detection Limit (IDL) for mercury and less than 10x the blank concentration level that preceded or followed the non-compliant Continuing Calibration Blank (CCB) are considered quantitatively uncertain and are unusable because the concentration level of mercury in the CCB was detected at the IDL of 0.3 µg/L. The result (0.3 µg/L) reported for mercury in sample MYJ618 was found at the IDL and less than 10x the concentration of the non-compliant CCB, and is therefore rejected.

- B. The following results are estimated and are considered usable for limited purposes. The results are flagged "J" in Table 1A.

- All results above the Instrument Detection Limit but below the Contract Required Detection Limit (denoted with an "L" qualifier)

Results above the Instrument Detection Limit (IDL) but below the

Contract Required Detection Limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- C. The following results are estimated and are considered usable for limited purposes because technical holding times were exceeded. The results are flagged "J" in Table 1A.

- Mercury in samples MYJ603, MYJ608, MYJ616, MYJ618, MYJ620, MYJ622, MYJ624, MYJ626, MYJ628, MYJ630 and MYJ635

These water analyses exceeded the 40 CFR 136 (Clean Water Act) 28-day technical holding time as shown below.

<u>Sample Number</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Date Analyzed</u>	<u># of days Exceeded</u>
MYJ603	8-11-92	8-13-92	9-10-92	2
MYJ608	8-12-92	8-13-92	9-10-92	1
MYJ616	8-12-92	8-13-92	9-10-92	1
MYJ618	8-12-92	8-14-92	9-10-92	1
MYJ620	8-11-92	8-13-92	9-10-92	2
MYJ622	8-11-92	8-13-92	9-10-92	2
MYJ624	8-12-92	8-14-92	9-10-92	1
MYJ626	8-11-92	8-13-92	9-10-92	2
MYJ628	8-12-92	8-13-92	9-10-92	1
MYJ630	8-11-92	8-13-92	9-10-92	2
MYJ635	8-12-92	8-14-92	9-10-92	1

Sample results may be biased low. False negatives may exist and detection limits may be higher than the reported values.

The 40 CFR 136 (Clean Water Act) technical holding times were not exceeded for the other analytes in all of the samples.

It should be noted that the mercury result in sample MYJ618 has been previously rejected. Please refer to Comment A.

- D. The following result is estimated and is considered usable for limited purposes because of equipment blank contamination problems. The result is flagged "J" in Table 1A.

- Antimony in sample MYJ603

The reported result of 393 $\mu\text{g/L}$ for antimony in equipment blank sample MYJ632 exceeds the Contract Required Detection Limit (CRDL) of 60.0 $\mu\text{g/L}$. The result reported for antimony in sample MYJ603 is detected above the Instrument Detection Limit (IDL) and less than ten times the concentration of the associated equipment blank, and is therefore considered quantitatively uncertain. Analytical uncertainty near the detection limit exists because of equipment blank contamination.

An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

- E. The following results are estimated and are considered usable for limited purposes because of accuracy problems. The results are flagged "J" in Table 1A.

- Lead in all of the samples
- Mercury in all of the samples

The matrix spike recovery results for lead and mercury in QC sample number MYJ622 did not meet the 75-125% criteria for accuracy. The percent recovery and percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

<u>Analyte</u>	MYJ622	MYJ622
	<u>% Recovery</u>	<u>% Bias</u>
Lead	56.2	-43.8
Mercury	70.0	-30.0

Results above the IDL are considered quantitatively uncertain. The results reported for lead and mercury in all of the samples may be biased low, and where non-detected, false negatives may exist.

It should be noted that the mercury result in sample MYJ618 has been previously rejected. Please refer to Comment A.

- F. The following results are estimated and are considered usable for limited purposes because of accuracy problems. The results are flagged "J" in Table 1A.

- Arsenic in samples MYJ603, MYJ608, MYJ616 and MYJ628
- Lead in samples MYJ603, MYJ606, MYJ608, MYJ612, MYJ614, MYJ616, MYJ618, MYJ620, MYJ622, MYJ624, MYJ626, MYJ628 and MYJ635
- Selenium in samples MYJ606, MYJ616, MYJ630 and MYJ632
- Thallium in samples MYJ608, MYJ614 and MYJ635

Arsenic, lead, selenium and thallium were analyzed by the Graphite Furnace Atomic Absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination. The analytical spike recovery results for arsenic, lead, selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and percent bias for each analyte is presented below and is based on an ideal recovery of 100%.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Arsenic	MYJ603	83.5	-16.5
	MYJ608	82.0	-18.0
	MYJ616	83.5	-16.5
	MYJ628	82.5	-17.5
Lead	MYJ603	79.2	-20.8
	MYJ606	53.6	-46.4
	MYJ608	49.8	-50.2
	MYJ612	53.5	-46.5
	MYJ614	47.8	-52.2
	MYJ616	53.2	-46.8
	MYJ618	44.1	-55.9
	MYJ620	59.3	-40.7
	MYJ622	52.4	-47.6
	MYJ624	74.8	-25.2
	MYJ626	49.1	-50.9
	MYJ628	50.7	-49.3
	MYJ635	53.6	-46.4
Selenium	MYJ606	74.0	-26.0
	MYJ616	74.0	-26.0
	MYJ630	63.0	-37.0
	MYJ632	61.0	-39.0
Thallium	MYJ608	83.4	-16.6
	MYJ614	83.9	-16.1
	MYJ635	84.0	-16.0

The post-digestion spike recovery results for arsenic, lead, selenium and thallium in the samples listed above show an analytical deficiency. Results above the IDL are considered quantitatively uncertain. The results reported for selenium in samples MYJ606 and MYJ616 may be biased low. The detection limits reported for arsenic, lead and thallium in the samples listed above and for selenium in samples MYJ630 and MYJ632 may be biased low and false negatives may exist.

- G. Due to the dilution of the analytical spike, the quantitation limits for the analytes shown below have been raised.

- Lead in sample MYJ603
- Selenium in samples MYJ606 and MYJ616

Lead and selenium were analyzed by the Graphite Furnace AA technique, which requires the analysis of analytical spikes. Analytical spikes are post-digestion spikes prepared prior to analysis by adding a known quantity of the analyte to an aliquot of the digested sample. The samples listed above were diluted by a factor of five because the spike recovery obtained in the original analysis was less than 40%. The low percent recovery obtained for lead and selenium may be due to chemical or physical interferences. Dilution of the samples is performed to reduce any matrix

interferences which may be present. Consequently, the quantitation limits for lead in sample MYJ603 and for selenium in samples MYJ606 and MYJ616 were raised by the dilution factor.

- H. A 26.9 Relative Percent Difference (RPD) was obtained for selenium in the analysis of field duplicate pair samples MYJ608 and MYJ628. The analysis of field duplicate samples is a measure of both field and analytical precision. The results are expected to vary more than laboratory duplicates (± 20 RPD or \pm CRDL criteria for precision) since sampling variability is included in the measurement. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, poor sampling or laboratory technique, or method defects. The effect on the quality of the data is not known.
- I. All of the other results are considered usable for all purposes. All QC requirements, other than those discussed above, have been met and are considered acceptable.

ANALYTICAL RESULTS

Page 1 of 3

TABLE 1A

Case No.: LV2S61 Memo #05

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Dina David, ESAT/ICF Technology, Inc.

Date: November 2, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Station Location	GW-01			GW-04			GW-07			GW-10			GW-11			GW-23			GW-24		
Sample I.D.	MYJ603 D1			MYJ606			MYJ608 D2			MYJ612			MYJ614			MYJ616			MYJ618		
Date of Collection	08-11-92			08-13-92			08-12-92			08-13-92			08-13-92			08-12-92			08-12-92		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	26.3 U			26.3 U			26.3 U			26.3 U			26.3 U			26.3 U			26.3 U		
Antimony	12.2 L J	BD		11.8 U			11.8 U			11.8 U			11.8 U			11.8 U			11.8 U		
Arsenic	2.2 U J	F		2.2 U			2.2 U J	F		2.2 U			2.2 L J	B		2.2 U J	F		2.2 U		
Barium	7.5 U			7.5 U			7.5 U			7.5 U			7.5 U			7.5 U			7.5 U		
Beryllium	0.97 L J	B		0.71 L J	B		0.84 L J	B		0.82 L J	B		0.94 L J	B		0.84 L J	B		0.94 L J	B	
Cadmium	1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U		
Calcium	279000			183000			210000			221000			277000			232000			281000		
Chromium	4.6 L J	B		5.1 L J	B		2.1 U			2.1 U			2.3 L J	B		2.1 U			4.2 L J	B	
Cobalt	2.6 U			2.6 U			2.6 U			2.6 U			2.6 U			2.6 U			2.6 U		
Copper	1.5 U			1.5 U			1.5 U			1.5 U			1.5 U			1.5 U			1.5 U		
Iron	8.1 U			8.1 U			8.1 U			8.1 U			8.1 U			8.1 U			8.1 U		
Lead	9.0 U J	EFG		1.8 U J	EF		1.8 U J	EF		1.8 U J	EF		1.8 U J	EF		1.8 U J	EF		1.8 U J	EF	
Magnesium	85500			56400			65400			64100			78200			67300			80900		
Manganese	0.74 U			0.74 U			26.4			1950			2.3 L J	B		290			0.74 U		
Mercury	0.30 U J	CE		0.30 U J	E		0.30 U J	CE		0.30 U J	E		0.30 U J	E		0.30 J	CE		0.30 R	ACE	
Nickel	15.4 L J	B		9.7 U			10.7 L J	B		9.7 U			9.7 U			11.2 L J	B		12.7 L J	B	
Potassium	5520			3960 L J	B		4470 L J	B		4710 L J	B		5540			4110 L J	B		5270		
Selenium	67.7			17.0 L J	BFG		30.9	H		52.9			89.7			13.0 L J	BFG		87.1		
Silver	2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U		
Sodium	146000			121000			159000			127000			137000			131000			124000		
Thallium	1.4 U			1.4 U			1.4 U J	F		1.4 U			1.4 U J	F		1.4 U			1.4 U		
Vanadium	4.2 L J	B		2.2 L J	B		3.6 L J	B		2.5 L J	B		4.5 L J	B		3.2 L J	B		4.3 L J	B	
Zinc	8.1 U			8.1 U			8.1 U			17.2 L J	B		8.3 L J	B		8.1 U			8.1 U		

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 2 of 3

TABLE 1A

Case No.: LV2S61 Memo #05

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Dina David, ESAT/ICF Technology, Inc.

Date: November 2, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Station Location	GW-28			GW-26			GW-30			GW-12			GW-17			GW-32			GW-33		
Sample I.D.	MJY620			MYJ622			MYJ624			MYJ626 D1			MYJ628 D2			MYJ630 EB			MYJ632 EB		
Date of Collection	08-11-92			08-11-92			08-12-92			08-11-92			08-12-92			08-11-92			08-13-92		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	26.3 U			26.3 U			26.3 U			26.3 U			26.3 U			26.3 U			26.3 U		
Antimony	11.8 U			11.8 U			11.8 U			11.8 U			11.8 U			11.8 U			393		D
Arsenic	2.2 U			2.2 U			2.2 U			2.2 U			2.2 U J F			2.2 U			2.2 U		
Barium	10.2 L J B			7.5 U			30.2 L J B			7.5 U			7.5 U			7.5 U			7.5 U		
Beryllium	0.95 L J B			0.84 L J B			0.54 L J B			1.1 L J B			0.81 L J B			0.27 U			0.27 U		
Cadmium	1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U			1.1 U		
Calcium	260000			239000			153000			279000			211000			160 L J B			128 U		
Chromium	2.1 U			2.1 L J B			2.5 L J B			3.6 L J B			2.1 U			2.1 U			2.1 U		
Cobalt	2.6 U			2.6 U			2.6 U			2.6 U			2.6 U			2.6 U			11.4 L J B		
Copper	1.5 U			1.5 U			1.5 U			1.5 U			1.5 U			1.5 U			1.5 U		
Iron	8.1 U			8.1 U			8.1 U			8.1 U			8.1 U			8.1 U			8.1 U		
Lead	1.8 U J EF			1.8 U J EF			1.8 U J EF			1.8 U J EF			1.8 U J EF			1.8 U J E			1.8 U J E		
Magnesium	76500			69500			43000			85400			66100			180 U			180 U		
Manganese	0.74 U			10.9 L J B			0.93 L J B			0.74 U			26.5			0.74 U			0.74 U		
Mercury	0.40 J CE			1.1 J CE			0.30 U J CE			0.30 U J GE			0.30 U J CE			0.30 U J CE			0.30 U J E		
Nickel	15.5 L J B			9.7 U			9.7 U			9.7 U			9.7 U			9.7 U			9.7 U		
Potassium	5220			4840 L J B			4770 L J B			5010			4290 L J B			537 U			537 U		
Selenium	42.5			52.8			31.4			68.1			40.5 H			2.3 U J F			2.3 U J F		
Silver	2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U			2.7 U		
Sodium	138000			142000			79900			146000			163000			308 L J B			284 U		
Thallium	1.4 U			1.4 U			1.4 U			1.4 U			1.4 U			1.4 U			1.4 U		
Vanadium	2.8 L J B			3.1 L J B			3.9 L J B			3.9 L J B			3.4 L J B			1.6 U			1.6 U		
Zinc	8.1 U			8.1 U			11.5 L J B			8.1 U			8.1 U			8.1 U			8.1 U		

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 3 of 3

TABLE 1A

Case No.: LV2S61 Memo #05

Site: Waste Disposal, Inc.

Lab.: Region IX, Las Vegas

Reviewer: Dana David, ESAT/ICF Technology, Inc.

Date: November 2, 1992

Analysis Type: Low Concentration Water Samples
for RAS Dissolved Metals

Concentration in ug/L

Station Location Sample I.D. Date of Collection	GW-02 MYJ635 08-12-92			LAB BLANK			IDL			CRDL								
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	26.3 U			26.3 U			26.3			200								
Antimony	11.8 U			11.8 U			11.8			60.0								
Arsenic	2.2 U			2.2 U			2.2			10.0								
Barium	7.5 U			7.5 U			7.4			200								
Beryllium	0.36 L J B			0.27 U			0.30			5.0								
Cadmium	1.1 U			1.1 U			1.1			5.0								
Calcium	204000			128 U			128			5000								
Chromium	6.6 L J B			2.1 U			2.1			10.0								
Cobalt	2.6 U			2.6 U			2.6			50.0								
Copper	1.5 U			1.5 U			1.5			25.0								
Iron	8.1 U			8.1 U			8.1			100								
Lead	1.8 U J EF			1.8 U			1.8			3.0								
Magnesium	58600			180 U			180			5000								
Manganese	0.86 L J B			0.74 U			0.70			15.0								
Mercury	0.30 U J CE			0.30 U			0.30			0.20								
Nickel	9.7 U			9.7 U			9.7			40.0								
Potassium	4470 L J B			537 U			537			5000								
Selenium	37.2			2.3 U			2.3			5.0								
Silver	2.7 U			2.7 U			2.7			10.0								
Sodium	113000			284 U			284			5000								
Thallium	1.4 U J F			1.4 U			1.4			10.0								
Vanadium	3.9 L J B			1.6 U			1.6			50.0								
Zinc	8.1 U			8.1 U			8.1			20.0								

Val-Validity Refer to Data Qualifiers in Table 1B

Com.-Comments Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit for Waters, MDL-Method Detection Limit for Soils.

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Travel Blank, BG-Background

CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

NO QUALIFIER indicates that the data are acceptable both qualitatively and quantitatively.

- U The analyte was analyzed for but was not detected above the level of the reported value. The reported value is the Instrument Detection Limit (IDL) for waters and the Method Detection Limit (MDL) for soils for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L The analyte was analyzed for but results fell between the IDL for waters or the MDL for soils and the CRDL. Results are estimated and considered usable for limited purposes.
- J The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample. Results are estimated and the data considered usable for limited purposes. Results are qualitatively acceptable.
- R The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary to confirm or deny the presence of the analyte. Results are rejected and data are unusable for any purposes.
- UJ The analyte was analyzed for but was not detected above the reported value. The reported value may not accurately or precisely represent the sample IDL or MDL.

12-541

In Reference to Case No(s).:

LV2S61 Memo #05

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: October 26, 1992

Laboratory Name: Region IX, Las Vegas

Lab Contact: Ernie Appelhans (702)798-2621

Region: IX

Regional Contact: Dina David, ESAT/ICF Technology, Inc.

Call Initiated By: Laboratory X Region

In reference to data for the following sample number(s):
MYJ622 and MYJ628

Summary of Questions/Issues Discussed:

1. The dilution factor on Form 14 pg. 53 for ICP serial dilution sample MYJ622 should be 5.00 not 1.00.
2. The duplicate result for mercury in sample MYJ628 should be below the IDL of 0.3 µg/L.

Summary of Resolution:

1. Corrected and resubmitted Form 14 page 53.
2. Corrected and resubmitted Form 6 page 36.

Dina David
Signature

October 30, 1992
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) Brenda Bettencourt

D-56

TPO: [] FYI [X] For Attention [X] For Action

Region IX

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. LV2S61 Memo #05 LABORATORY Region IX. Las Vegas

SDG NO. MYJ603 SITE NAME Waste Disposal, Inc.

SOW NO. 3/90 REVIEW COMPLETION DATE November 2, 1992

REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Dina David

NO. OF SAMPLES 15 WATER SOIL OTHER

	ICP	AA	Hg	Cyanide
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>M</u>	<u> </u>
2. CALIBRATION	<u>0</u>	<u>0</u>	<u>Z</u>	<u> </u>
3. BLANKS	<u>X</u>	<u>0</u>	<u>0</u>	<u> </u>
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>0</u>			
5. LABORATORY CONTROL SAMPLE (LCS)	<u>0</u>	<u>0</u>		<u> </u>
6. DUPLICATE ANALYSIS	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
7. MATRIX SPIKE ANALYSIS	<u>0</u>	<u>M</u>	<u>M</u>	<u> </u>
8. METHOD OF STANDARD ADDITION (MSA)		<u>0</u>		
9. ICP SERIAL DILUTION	<u>0</u>			
10. SAMPLE QUANTITATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
11. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
12. OTHER QC	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
13. OVERALL ASSESSMENT	<u>X</u>	<u>M</u>	<u>M/Z</u>	<u> </u>

0 - No problems or minor problems that do not affect data usability.

X - No more than about 5% of the data points are qualified as either estimated or unusable.

M - More than about 5% of the data points are qualified as estimated.

Z - More than about 5% of the data points are qualified as unusable.

TPO ACTION ITEMS: Mercury result (0.3 µg/L) in sample MYJ618 was rejected due to the CCB value of 0.3 µg/L obtained.

TPO ATTENTION: The 40 CFR 136 (Clean Water Act) 28-day technical holding time for mercury was exceeded in 11 water samples.

AREAS OF CONCERN: The date on the ICP interelement correction factors form appears to be a default date (1/1/92). The ICP linear range determination was performed (9/15/92) after the ICP analysis (8/31/92) on the samples.

255

APPENDIX E
GROUNDWATER PURGING/SAMPLING LOGS

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: WDJ / Santa Fe Springs / CADATE: 2/12/91 SAMPLING TEAM: PN/JWWEATHER: Rainy SAMPLE LOCATION: GW-01

WELL CONDITION: _____

METHOD OF PURGING: 4" PVC boilerMETHOD OF SAMPLING: 2" Teflon

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58.00 CASING DIAMETER: 4"DEPTH TO WATER: 45.30 TIME: 16:10 VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 12.70 (X) DIAMETER²: 16 (X) (VF) - WELL VOLUME: 8.16 gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # _____

Turbidity Meter Serial # _____

Other Meter: _____ Serial # _____

Calibrated: yes noCalibrated: yes noCalibrated: yes noCalibrated: yes no

DATE	TIME	VOLUME	T °C	EC ^{x1000}	pH	TURBIDITY	COMMENTS
<u>2/12</u>	<u>4:42</u>	<u>5</u>	<u>22</u>	<u>216</u>	<u>6.55</u>		<u>Rain, cloudy</u>
	<u>4:50</u>	<u>16</u>	<u>22</u>	<u>216</u>	<u>6.26</u>		
	<u>4:53</u>	<u>24</u>	<u>22</u>	<u>218</u>	<u>6.35</u>		
				<u>214</u>	<u>6.00</u>		<u>Final</u>

TIME SAMPLING STARTS: 16:00 DEPTH TO WATER: _____ TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems: _____

Logger's Initials: _____

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal, Inc. / DisposalDATE: 2/13/92 SAMPLING TEAM: Peter Husby / Jerry MaxwellWEATHER: Sunny, warm SAMPLE LOCATION: GW-02WELL CONDITION: Well head & casing intact. Located in dirty area. Flooding ^{petrol.} product in crusty box.METHOD OF PURGING: 4" PVC bailerMETHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 53.00 CASING DIAMETER: 4"DEPTH TO WATER: 41.15 TIME: 14 VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 11.85 (OUTSIDE (X) DIAMETER)²: 16 (X) (VF) - WELL VOLUME: 7.73 gal.TIME PURGING STARTS: 9:16 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # Beckman DWSCalibrated: ☒ yes ☐ noEC Meter Serial # VWR model 604Calibrated: ☒ yes ☐ no

Turbidity Meter Serial # _____

Calibrated: ☐ yes ☐ noOther Meter: _____ Serial # _____ Calibrated: ☐ yes ☐ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2/13/92</u>	<u>9:22</u>	<u>8</u>	<u>21</u>	<u>1501</u>	<u>1.08</u>		<u>clear</u>
<u>2/13/92</u>		<u>8</u>	<u>21</u>	<u>1504</u>	<u>1.21</u>		
<u>2/13/92</u>		<u>8</u>	<u>20.6</u>	<u>1509</u>	<u>1.06</u>		
			<u>19.1</u>	<u>1512</u>	<u>2.16</u>	<u>83.1</u>	<u>Final</u>

TIME SAMPLING STARTS: _____ DEPTH TO WATER: 4.21 TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems:Logger's Initials: Jm

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal, Inc. / Santa Fe Springs, CA
 DATE: 2/13/91 SAMPLING TEAM: Peter Hurby / Jerry Manuel
 WEATHER: Cloudy, Warm SAMPLE LOCATION: GW-04
 WELL CONDITION: Standing water in crusty box
 METHOD OF PURGING: 4" PVC bailer
 METHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 68.74 CASING DIAMETER: 4"DEPTH TO WATER: 55.75 TIME: 12:10 VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 10.02 (X) DIAMETER)²: 16 (X) (VF) - WELL VOLUME: 6.53 gal.TIME PURGING STARTS: 12:15 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

Calibrated: yes no

EC Meter Serial # _____

Calibrated: yes no

Turbidity Meter Serial # _____

Calibrated: yes noOther Meter: _____ Serial # _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
2/13/91		6.5	19	1670	6.53		
		13	19	1649	6.54		
		19.5	19	1692	6.36		
			19	1648	6.42		

TIME SAMPLING STARTS: _____ DEPTH TO WATER: 58.72 TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems: _____

Logger's Initials: JM

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: _____

DATE: 2/13/92 SAMPLING TEAM: Sabatino / OlsonWEATHER: Cloudy / Sprinkle SAMPLE LOCATION: SW07

WELL CONDITION: _____

METHOD OF PURGING: BailerMETHOD OF SAMPLING: Teflon Bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58.28 CASING DIAMETER: _____DEPTH TO WATER: 47.38 TIME: 11:30 VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: _____ (OUTSIDE
(X) DIAMETER)²: _____ (X) (VF) - WELL VOLUME: _____ gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # Beckman 10 Calibrated: X yes noEC Meter Serial # VWR made 604# Calibrated: X yes noTurdity Meter Serial # _____ Calibrated: yes noOther Meter: _____ Serial # _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2/13/92</u>	<u>11:45</u>	<u>7.4</u>	<u>20.4</u>	<u>1.806</u>	<u>6.53</u>		
	<u>11:55</u>	<u>14.8</u>	<u>20.8</u>	<u>1.874</u>	<u>6.85</u>		
	<u>12:05 pm</u>	<u>22.2</u>	<u>20.2</u>	<u>1.901</u>	<u>6.87</u>		
	<u>12:30 pm</u>	<u>21.6</u>	<u>20.00</u>	<u>2.070</u>	<u>6.80</u>	<u>10.29</u>	<u>after sampling</u>

TIME SAMPLING STARTS: 12:05 DEPTH TO WATER: 47.38 TIME SAMPLING COMPLETE: 12:30 pmSAMPLE ID NUMBER(S): WD# WD920207 and WD920217

Comments/Problems: _____

Logger's Initials: _____

E-H

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal Inc.DATE: 2/13/92 SAMPLING TEAM: Olson / BaylorWEATHER: Partly cloudy SAMPLE LOCATION: GWO 9.WELL CONDITION: well in standing water water in traffic box, but not over PVC capMETHOD OF PURGING: BailerMETHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58 57.72 CASING DIAMETER: _____DEPTH TO WATER: 46.36 TIME: 9:32 VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 11.36 (X) DIAMETER²: 4 (X) (VF) - WELL VOLUME: 7.5 gal.TIME PURGING STARTS: 9:32 AM TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # _____

Turbidity Meter Serial # _____

Other Meter: _____ Serial # _____

Calibrated: yes noCalibrated: yes noCalibrated: yes noCalibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2/13/92</u>	<u>9:48</u>	<u>7.5 gal</u>	<u>20°C</u>	<u>1.946</u>	<u>5.95</u>	_____	_____
_____	<u>10:01</u>	<u>15.0 gal</u>	<u>21°C</u>	<u>1.948</u>	<u>5.98</u>	_____	_____
_____	<u>10:09</u>	<u>22.5 gal</u>	<u>21°C</u>	<u>1.927</u>	<u>5.82</u>	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

TIME SAMPLING STARTS: _____ DEPTH TO WATER: _____ TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems:

Samples not collected. Sudden rainstorm left
water pooled over wellhead.

Logger's Initials: KB

E-5

GROUNDWATER PURGING/SAMPLING LOG

P-1 02

PROJECT NAME/ADDRESS: W.D.I. / Santa Fe Springs, CADATE: 2/12/92 SAMPLING TEAM: C.O. / R.S. & J. nrWEATHER: overcast / slightly rainy SAMPLE LOCATION: GW-10WELL CONDITION: in tactMETHOD OF PURGING: 9" PVC bailerMETHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58.00 CASING DIAMETER: 4 in.DEPTH TO WATER: 47.94 TIME: _____ VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 10.06 (X) DIAMETER)²: 4² (X) (VF) - WELL VOLUME: 6.56 gal.TIME PURGING STARTS: 8:55 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

Calibrated: yes no

EC Meter Serial # _____

Calibrated: yes no

Turdity Meter Serial # _____

Calibrated: yes no

Other Meter: _____ Serial # _____

Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC $\times 20K$	pH	TURBIDITY	COMMENTS
<u>2/12/92</u>	<u>9:10</u>	<u>6.5</u>	<u>22</u>	<u>0.172</u>	<u>7.32</u>		<u>cloudy, brn</u>
	<u>9:18</u>	<u>6.52</u>	<u>21</u>	<u>0.177</u>	<u>7.75</u>		
	<u>9:20</u>	<u>6.523</u>	<u>21</u>	<u>0.176</u>	<u>7.67</u>		
	<u>9:24</u>		<u>21</u>	<u>0.178</u>	<u>7.68</u>		<u>Final</u>

TIME SAMPLING STARTS: _____ DEPTH TO WATER: _____ TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems:

Heavy cloudinessLogger's Initials: Jan

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: U.D.I / Santa Fe Springs, CA
 DATE: 2/12/92 SAMPLING TEAM: C.O./R.S./JM
 WEATHER: Overcast / Slightly rainy SAMPLE LOCATION: GW-11
 WELL CONDITION: in tact
 METHOD OF PURGING: Bennett Piston Pump
 METHOD OF SAMPLING: 2" Teflon bailer
 PUMP TYPE, Dedicated/Portable: _____
 DEPTH OF WELL: 128.40 CASING DIAMETER: .9"
 DEPTH TO WATER: 48.20 TIME: _____ VOLUME FACTOR (VF): 0.0408
 HEIGHT OF WATER: 80.2 (X) DIAMETER)²: 4² (X) (VF) - WELL VOLUME: 52.35 gal.
 TIME PURGING STARTS: 8:52 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____
 pH Meter Serial # _____ Calibrated: yes no
 EC Meter Serial # _____ Calibrated: yes no
 Turdity Meter Serial # _____ Calibrated: yes no
 Other Meter: _____ Serial # _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC μ S/cm	pH	TURBIDITY	COMMENTS
2/12/92	10:00	53	21	0.209	6.16		
	10:15	110	21	0.205	6.17		
	11:50	165	21	0.210	6.26		
			21	1.906 ^{KB}	6.12	15.7	Final
				0.190			

TIME SAMPLING STARTS: 12:00 DEPTH TO WATER: 48.1 TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems: _____

Logger's Initials: JM
KB

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal Inc.DATE: 2-12-92 SAMPLING TEAM: Olson / SakamotoWEATHER: Partly Cloudy SAMPLE LOCATION: 6524^{co} GW23

WELL CONDITION: _____

METHOD OF PURGING: PVC bailerMETHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: _____ CASING DIAMETER: _____

DEPTH TO WATER: 58.5 67.36 TIME: _____ VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 58.24 (OUTSIDE (X) DIAMETER)²: _____ (X) (VF) - WELL VOLUME: 3.38 gal.TIME PURGING STARTS: 4:42 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # _____

Turdity Meter Serial # _____

Other Meter: _____ Serial # _____

Calibrated: yes noCalibrated: yes noCalibrated: yes noCalibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2-12-92</u>		<u>3.4</u>	<u>19.8</u>	<u>0.001</u>	<u>6.88</u>		
	<u>4:52</u>	<u>6.8</u>	<u>21.1</u>	<u>0.001</u>	<u>6.78</u>		
	<u>5:05</u>	<u>10.2</u>	<u>19.8</u>	<u>0.009</u>	<u>6.93</u>		
						<u>47.4</u>	<u>Final</u>

TIME SAMPLING STARTS: _____ DEPTH TO WATER: _____ TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems: _____

Logger's Initials: _____

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: W.D.T.DATE: 4/12/92 SAMPLING TEAM: Baylor, SakamotoWEATHER: rain SAMPLE LOCATION: GW-24WELL CONDITION: GoodMETHOD OF PURGING: Positive PumpMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: PortableDEPTH OF WELL: 112 CASING DIAMETER: 4.4DEPTH TO WATER: 63.72 TIME: 3:35P VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 49 (X) ^(OUTSIDE) DIAMETER²: 4² (X) (VF) - WELL VOLUME: 33 gal.TIME PURGING STARTS: 3:46 TIME PURGING COMPLETE: 5:11PM PUMPING RATE: 1.2 gpm

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # _____

Turbidity Meter Serial # _____

Other Meter: _____ Serial # _____

Calibrated: yes noCalibrated: yes noCalibrated: yes noCalibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>4/12/92</u>	<u>4:13</u>	<u>33 gal</u>	<u>20.1</u>	<u>.023</u>	<u>7.01</u>		
<u>4/12/92</u>	<u>4:43</u>	<u>66 gal</u>	<u>19.04</u>	<u>.031</u>	<u>7.01</u>		
	<u>5:11</u>	<u>79 gal</u>	<u>19.8</u>	<u>.040</u>	<u>6.99</u>		
			<u>20.2</u>	<u>.151</u>	<u>6.95</u>	<u>2.33</u>	<u>Final</u>

TIME SAMPLING STARTS: 5:10 DEPTH TO WATER: 63.76 TIME SAMPLING COMPLETE: 5:43SAMPLE ID NUMBER(S): WD920224

Comments/Problems:

Logger's Initials: KB

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal Inc.
 DATE: 2/12/92 SAMPLING TEAM: Husby / Olson / Sakamoto
 WEATHER: heavy rain SAMPLE LOCATION: GW-26

WELL CONDITION: _____

METHOD OF PURGING: PVC bailer

METHOD OF SAMPLING: Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 62.88 CASING DIAMETER: 4"

DEPTH TO WATER: 50.09 TIME: 10:42 VOLUME FACTOR (VF): 0.0408

HEIGHT OF WATER: 12.79 (X) DIAMETER)²: 16 (X) (VF) - WELL VOLUME: 8.35 gal.

TIME PURGING STARTS: 10:45 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

Thermometer Serial # _____
 pH Meter Serial # _____ Calibrated: yes no
 EC Meter Serial # _____ Calibrated: yes no
 Turbidity Meter Serial # _____ Calibrated: yes no
 Other Meter: _____ Serial # _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
2/12/92	11:05	8.4	20.5	16400	6.67		
2/12/92	11:20	8.4	20.7	18300	6.73		
2/12/92	11:30	8.4	20.9	193	6.71		
2/12/92	12:15	8.4	20.3		6.66		

TIME SAMPLING STARTS: _____ DEPTH TO WATER: _____ TIME SAMPLING COMPLETE: _____

SAMPLE ID NUMBER(S): _____

Comments/Problems: _____

Logger's Initials: _____

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: Waste Disposal, INCDATE: 2/11/92 SAMPLING TEAM: Clarice Olson, Rossanne Skamato, Jerry ManuelWEATHER: overcast, cool SAMPLE LOCATION: GW-28WELL CONDITION: standing water in rusty boxMETHOD OF PURGING: 4" PVC bailerMETHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: _____ CASING DIAMETER: 4"DEPTH TO WATER: 51.81 TIME: _____ VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: _____ (OUTSIDE
(X) DIAMETER)² (4)² (X) (VF) - WELL VOLUME: _____ gal.TIME PURGING STARTS: 15:50 TIME PURGING COMPLETE: 16:30 PUMPING RATE: _____

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # 1111

Turbidity Meter Serial # _____

Other Meter: _____ Serial # _____

Calibrated: ☒ yes ☐ noCalibrated: ☒ yes ☐ noCalibrated: ☒ yes ☐ noCalibrated: ☐ yes ☐ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2/11/92</u>	<u>16:00</u>	<u>2.0</u>	<u>21</u>	<u>203</u>	<u>6.6</u>		
<u>2/11/92</u>	<u>16:05</u>	<u>16</u>	<u>21</u>	<u>203</u>	<u>6.6</u>		
<u>2/11/92</u>	<u>16:10</u>	<u>24</u>	<u>21</u>	<u>203</u>	<u>6.6</u>	<u>>200+</u>	<u>after sampling</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

TIME SAMPLING STARTS: 16:20 DEPTH TO WATER: 51.82 TIME SAMPLING COMPLETE: 16:55SAMPLE ID NUMBER(S): WD920228 for Total metals, BNAs, Pesticides/PCBs, VOA's
WD920228D for dissolved metals

Comments/Problems:

Water: very turbid.

Logger's Initials: _____

E-11

GROUNDWATER PURGING/SAMPLING LOG

PROJECT NAME/ADDRESS: WDFDATE: 2/11/92 SAMPLING TEAM: Baylor, HuskyWEATHER: cloudy, rain SAMPLE LOCATION: GW-30WELL CONDITION: GoodMETHOD OF PURGING: Piston PumpMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: portableDEPTH OF WELL: 93 CASING DIAMETER: 4"DEPTH TO WATER: 51.9' TIME: 3:05 PM VOLUME FACTOR (VF): 0.0408HEIGHT OF WATER: 51.9' (X) (OUTSIDE DIAMETER)²: 4" (X) (VF) - WELL VOLUME: 28 gal.TIME PURGING STARTS: 3:10 PM TIME PURGING COMPLETE: _____ PUMPING RATE: 1.5 gal/min

Thermometer Serial # _____

pH Meter Serial # _____

EC Meter Serial # _____

Turbidity Meter Serial # _____

Other Meter: _____

Serial # _____

Calibrated: ☒ yes ☐ noCalibrated: ☒ yes ☐ noCalibrated: ☒ yes ☐ noCalibrated: ☐ yes ☐ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>2/11/92</u>	<u>3:30 PM</u>	<u>27 gal</u>	<u>19.4</u>	<u>1528</u>	<u>7.16</u>		
	<u>3:53 PM</u>	<u>55 gal</u>	<u>19.5</u>	<u>1545</u>	<u>7.27</u>		
	<u>4:15</u>	<u>83 gal</u>	<u>19.8</u>	<u>1570</u>	<u>7.23</u>		
	<u>4:40 PM</u>		<u>19.9</u>	<u>1503</u>	<u>7.12</u>	<u>7.70</u>	<u>after sampling</u>

TIME SAMPLING STARTS: 4:20 PM DEPTH TO WATER: 51.96 TIME SAMPLING COMPLETE: 4:40SAMPLE ID NUMBER(S): WD 920230

Comments/Problems:

Logger's Initials: KB

GROUNDWATER PURGING/SAMPLING LOG

P. 1 of 1

PROJECT NAME/ADDRESS: WDIDATE: 2/11/92 SAMPLING TEAM: Sakamoto, MaxwellWEATHER: cloudy, rain SAMPLE LOCATION: WD920232WELL CONDITION: Blank (equipment)METHOD OF PURGING: METHOD OF SAMPLING: PUMP TYPE, Dedicated/Portable: DEPTH OF WELL: CASING DIAMETER: DEPTH TO WATER: TIME: VOLUME FACTOR (VF): 0.0408(OUTSIDE
HEIGHT OF WATER: (X) DIAMETER)²: (X) (VF) - WELL VOLUME: gal.TIME PURGING STARTS: TIME PURGING COMPLETE: PUMPING RATE:

Thermometer Serial #
pH Meter Serial # Calibrated: yes no
EC Meter Serial # Calibrated: yes no
Turbidity Meter Serial # Calibrated: yes no
Other Meter: Serial # Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

TIME SAMPLING STARTS: DEPTH TO WATER: TIME SAMPLING COMPLETE: SAMPLE ID NUMBER(S): WD920232

Comments/Problems:

2 bailers were used; one for inorganics (DI/dist water)
and one for organics (HPLC water)

Logger's Initials: KB

E-13

E-14

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/12/92 SAMPLING TEAM: Kathy Baylor + Tina DieboldWEATHER: not sunny, breezy SAMPLE LOCATION: GW-01WELL CONDITION: water in annular spaceMETHOD OF PURGING: PVC bailerMETHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58 ft. CASING DIAMETER: 4"DEPTH TO WATER: 44.04 ft. WATER LEVEL INDICATOR MODEL: Solinst sounderHEIGHT OF WATER: 14 ft. x 0.661 = WELL VOLUME 9.254 gal.TIME PURGING STARTS: 16:04 TIME PURGING COMPLETE: 16:45 PUMPING RATE: _____

pH Meter Serial # Orion Calibrated: X yes _____ no
 EC Meter Serial # VWR #2 Calibrated: X yes _____ no
 Turbidity Meter Serial # _____ Calibrated: X yes _____ no
 Other Meter: _____ Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
5/12/92	16:16	1st 10gal		2220	6.47	7.13	turbid
	16:33	2nd 20gal	22°C	2070	7.08		
	16:45	3rd 30gal	22°C	2060	7.13		
	17:22	Final	22°C	2080	7.11	10.99.0	T.D. 5/12/92 at 200 or 9900

TIME SAMPLING STARTS: 16:50 TIME COMPLETE: 17:22 FINAL WATER DEPTH: 44.04SAMPLE ID NUMBER(S): GW-01 YK973 Voas, BNAs, Pesticides/PCBs (RAS)

GW-01 duplicate called "GW-12"
YK985 for Voas, BNAs, Pesticides/PCBs (RAS)
MYJ125 total metals; MYJ126 dissolved metals (RAS)

Comments/Problems: _____

16:00 HAU reading zero.The dissolved metals took over 20 minutes each to filter.

E-15

Logger's Initials T.D.

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED

DATE: 5/13/92 SAMPLING TEAM: Kathy Bartlor + Tina Diebold

WEATHER: hot, sunny, breezy SAMPLE LOCATION: GW-02

WELL CONDITION: water in annular space; thick orange fluid (rusty) on lip of PVC well casing

METHOD OF PURGING: PVC bailer

METHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: N/A

DEPTH OF WELL: 53 ft. CASING DIAMETER: 4"

DEPTH TO WATER: 39.74 ft. WATER LEVEL INDICATOR MODEL: Sulinst

HEIGHT OF WATER: 13.26 ft. x 0.661 = WELL VOLUME 8.76 gal.

TIME PURGING STARTS: 10:18 TIME PURGING COMPLETE: 11:11 PUMPING RATE: _____

pH Meter Serial # Orion Calibrated: x yes _____ no

EC Meter Serial # VWR #2 Calibrated: x yes _____ no

Turbidity Meter Serial # _____ Calibrated: _____ yes _____ no

Other Meter: _____ Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
5/13/92	10:40	1st 9 gal	21.5°C	2080	6.82		relatively clear
5/13/92	10:56	2nd 18 gal	21°C	2015	6.91		
5/13/92	11:11	3rd 27 gal	21°C	1960	6.99		
5/13/92	11:26	Final	21°C	1970	6.91	6130 (25 sec)	

TIME SAMPLING STARTS: 11:15 TIME COMPLETE: 11:25 FINAL WATER DEPTH: 39.75

SAMPLE ID NUMBER(S): RAS/VOAS, BNA, PEST./PCBS YK974
RAS TOTAL METALS MYJ103; RAS DISSOLVED METALS MYJ104

Comments/Problems: HNu Reading = 0

One extra VOA vial, which had been preserved prior to sample collection with 4 drops of 1:1 HCl, was filled with sample, capped, and then its pH was measured using Orion pH meter approximately 10 minutes after sample collection. The pH of the VOA sample was less than 2.

Logger's Initials T.D.

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/13/92 SAMPLING TEAM: Kathy Baylor + Tina DieboldWEATHER: Sunny, hot, breezy SAMPLE LOCATION: GW-04WELL CONDITION: high grasses around wellMETHOD OF PURGING: PVC bailerMETHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 68.74 ft. CASING DIAMETER: 4"DEPTH TO WATER: 57.36 ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 11.38 ft. x 0.661 = WELL VOLUME 7.52 gal.TIME PURGING STARTS: 16:44 TIME PURGING COMPLETE: 17:10 PUMPING RATE: _____

pH Meter Serial #	<u>Orion</u>	Calibrated: <u>x</u> yes	_____ no
EC Meter Serial #	<u>VWR #2</u>	Calibrated: <u>x</u> yes	_____ no
Turbidity Meter Serial #	_____	Calibrated: _____ yes	_____ no
Other Meter:	_____	Calibrated: _____ yes	_____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/13/92</u>	<u>16:50</u>	<u>1st purge</u>	<u>22°C</u>	<u>2080</u>	<u>6.77</u>	_____	_____
<u>↓</u>	<u>17:01</u>	<u>2nd</u>	<u>21°C</u>	<u>2000</u>	<u>6.72</u>	_____	_____
<u>↓</u>	<u>17:10</u>	<u>3rd</u>	<u>21.5°C</u>	<u>2020</u>	<u>6.80</u>	_____	_____
_____	_____	_____	<u>21°C</u>	<u>2020</u>	_____	_____	_____
<u>5/13/92</u>	<u>17:28</u>	_____	<u>21°C</u>	<u>2020</u>	<u>6.65</u>	<u>18,750</u>	<u>(too scale)</u>

TIME SAMPLING STARTS: 17:15 TIME COMPLETE: 17:27 FINAL WATER DEPTH: 57.36SAMPLE ID NUMBER(S): RAS VOA5, BUA5, Pests./PCBS YK975
RAS TOTAL Metals M45105, dissolved M45106

Comments/Problems: HNu reading 0.10 minutes after spraying WD-40.
Lock on Well Top was jammed and no lock cutter available. "WD-40"
was sprayed in the lock to free it up. The lock then opened.

Logger's Initials T.D.

E-17

K.B.

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/13/92 SAMPLING TEAM: Kathy Baylis + Tina DieboldWEATHER: hot, sunny, breezy SAMPLE LOCATION: GW-07 and duplicate "GW-17"WELL CONDITION: high grasses around wellMETHOD OF PURGING: PVC bailerMETHOD OF SAMPLING: teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58.28 ft. CASING DIAMETER: 4"DEPTH TO WATER: 46.07 ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 12.21 ft. x 0.661 = WELL VOLUME 8.1 gal.TIME PURGING STARTS: 1:56 TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial #	<u>Orion</u>	Calibrated: <u>X</u> yes <u> </u> no
EC Meter Serial #	<u>VWR #2</u>	Calibrated: <u>X</u> yes <u> </u> no
Turbidity Meter Serial #	_____	Calibrated: <u> </u> yes <u> </u> no
Other Meter:	_____	Calibrated: <u> </u> yes <u> </u> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/13/92</u>	<u>14:10</u>	<u>1st 6gal</u>	<u>22.5°C</u>	<u>2550</u>	<u>6.26</u>	_____	<u>fairly turbid</u>
<u>↓</u>	<u>14:21</u>	<u>2nd 6gal</u>	<u>23°C</u>	<u>2460</u>	<u>6.35</u>	_____	_____
<u>↓</u>	<u>14:31</u>	<u>3rd 24gal</u>	<u>21.5°C</u>	<u>2460</u>	<u>6.36</u>	_____	_____

<u>5/13/92</u>	<u>15:05</u>	<u>Final</u>	<u>22.5</u>	<u>2480</u>	<u>6.43</u>	<u>174.2</u>	<u>(no scale)</u>
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TIME SAMPLING STARTS: 14:37 TIME COMPLETE: 15:10 FINAL WATER DEPTH: 46.07SAMPLE ID NUMBER(S): GW-07: RAS UOAS, BNAS, PEST/PCBS YK976

RAS TOTAL METALS MYJ107; dissolved MYJ108

"GW-17": RAS UOAS, BNAS, PEST/PCBS YK986

RAS TOT. METALS MYJ127, dissolved MYJ128

Comments/Problems: _____

13:48 HAN reading 0.2.

Two extra vva vials, which had been preserved with four drops of 1:1 HCl, were filled with sample leaving a pea-sized bubble. The vials were then reopened and topped off with sample, again leaving a pea-sized bubble. The vials were ~~re~~ reopened for a second time and again topped off with sample.

After approximately 30 minutes, the pH of these two samples was checked. Both of the pH measurements were less than two.

Logger's Initials
T.D.
K.B.

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED

DATE: 5/13/92 SAMPLING TEAM: Margie Weiner, Jerry Manuell, Sue Sanders

WEATHER: Sunny, hazy, hot, 80° SAMPLE LOCATION: GW-10

WELL CONDITION: Good. Intact.

METHOD OF PURGING: 4" PVC bailer

METHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 58.0 ft. CASING DIAMETER: 4"

DEPTH TO WATER: 46.62 ft. WATER LEVEL INDICATOR MODEL: _____

HEIGHT OF WATER: 11.38 ft. x 0.661 = WELL VOLUME 7.28 gal.

TIME PURGING STARTS: 10:50 TIME PURGING COMPLETE: 11:10 PUMPING RATE: N/A

pH Meter Serial # BECKMAN 021 (#1) Calibrated: ✓ yes no
 EC Meter Serial # VWR Scientific Model 604 (#1) Calibrated: ✓ yes no
 Turbidity Meter Serial # DRT-15C (HFS Scientific) Calibrated: ✓ yes no
 Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/13</u>	<u>11:00</u>	<u>7.5</u>	<u>22.0</u>	<u>2070</u>	<u>6.62</u>		<u>disinfect odor</u>
	<u>11:05</u>	<u>7.5</u>	<u>22.0</u>	<u>2060</u>	<u>6.55</u>		
	<u>11:10</u>	<u>7.5</u>	<u>22.0</u>	<u>2100</u>	<u>6.57</u>		
	<u>11:35</u>	<u>-</u>	<u>22.1</u>	<u>2160</u>	<u>6.50</u>	<u>7200 NTU</u>	<u>final</u>

TIME SAMPLING STARTS: 11:15 TIME COMPLETE: 11:45 FINAL WATER DEPTH: 46.60

SAMPLE ID NUMBER(S): YK978, NYJ111 (total) + NYJ112 (DSS)

Comments/Problems: Sampler was wearing a compressor when the well was opened + got a reading of 0.0 ppm on the ARM. (Time was ~ 10:33)

• collected a second sample for dissolved metals because the filtration device was defective.

Logger's Initials JM/MPW

E-19

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/13/92 SAMPLING TEAM: Jerry Normell, Margie WernerWEATHER: Hot & Sunny SAMPLE LOCATION: GW-11WELL CONDITION: standing H₂O made Christy boxMETHOD OF PURGING: Bennett Perfor PumpMETHOD OF SAMPLING: 2" Teflon bailer

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 128.4 ft. CASING DIAMETER: 4"DEPTH TO WATER: 46.98 ft. WATER LEVEL INDICATOR MODEL: _____HEIGHT OF WATER: 81.42 ft. x 0.661 = WELL VOLUME 53.8 gal.TIME PURGING STARTS: 10:45 TIME PURGING COMPLETE: 13:00 PUMPING RATE: 1.3 GPM

pH Meter Serial # Beckman 21 (#1) Calibrated: ✓ yes no
 EC Meter Serial # VWR Scientific Model 604 (#1) Calibrated: ✓ yes no
 Turbidity Meter Serial # DRT-150 Calibrated: ✓ yes no
 Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/13</u>	<u>11:30</u>	<u>55</u>	<u>22.2</u>	<u>2380</u>	<u>6.83</u>		
<u>5/13/92</u>	<u>12:00</u>	<u>55</u>	<u>22.0</u>	<u>2400</u>	<u>6.84</u>		
<u>5/13</u>	<u>13:00</u>	<u>55</u>	<u>22.2</u>	<u>2380</u>	<u>6.85</u>		
<u>5/13</u>	<u>13:45</u>		<u>22.4</u>	<u>2400</u>	<u>6.89</u>	<u>4.80 NTU</u>	<u>final</u>

TIME SAMPLING STARTS: 13:30 TIME COMPLETE: 13:50 FINAL WATER DEPTH: 46.98SAMPLE ID NUMBER(S): YK979, NYJ113 (total) & NYJ114 (Drilled)

Comments/Problems: 10:30 - opened well & got an H₂S reading of 0.0 ppm.
Jerry H. was wearing a respirator when the well was opened.

Logger's Initials MDW/JH

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED / Santa Fe Springs, CA

DATE: 5/12/92 SAMPLING TEAM: EPA & ICF (Jerry Mannell & M. Warner)

WEATHER: Sunny & Warm SAMPLE LOCATION: GW-23

WELL CONDITION: Flush mounted crusty box intact despite being in high traffic area

METHOD OF PURGING: bailer (3" PVC)

METHOD OF SAMPLING: bailer (1 1/2" Teflon)

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 63.36 ft. CASING DIAMETER: 4"

DEPTH TO WATER: 57.64 ft. WATER LEVEL INDICATOR MODEL: _____

HEIGHT OF WATER: 5.72 ft. x 0.661 = WELL VOLUME 3.78 gal.

TIME PURGING STARTS: 1620 TIME PURGING COMPLETE: 1655 PUMPING RATE: N/A

pH Meter Serial #	<u>Barkman 21 (#1)</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
EC Meter Serial #	<u>VWR Scientific (#1) Model 604</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Turbidity Meter Serial #	<u>DRT-15C</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Other Meter:	_____	Calibrated:	<input type="checkbox"/> yes	<input type="checkbox"/> no

DATE	TIME	VOLUME	TEMP °C	EC	pH	TURBIDITY	COMMENTS
<u>5/12</u>	<u>1640</u>	<u>4</u>	<u>22.7</u>	<u>2140</u>	<u>7.09</u>	<u>21</u>	
<u>↓</u>	<u>1648</u>	<u>4</u>	<u>22.2</u>	<u>2090</u>	<u>7.19</u>		
<u>↓</u>	<u>1655</u>	<u>4</u>	<u>21.8</u>	<u>2110</u>	<u>7.12</u>		
<u>5/12</u>	<u>1720</u>	<u>1</u>	<u>22.0</u>	<u>2110</u>	<u>7.10</u>	<u>63.2</u>	<u>final</u>

TIME SAMPLING STARTS: 1700 TIME COMPLETE: 1720 FINAL WATER DEPTH: 57.62

SAMPLE ID NUMBER(S): VK980, MYJ115, MYJ116

Comments/Problems: _____

Logger's Initials MDW/JH

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED / Santa Fe Springs, CADATE: 5/12/92 SAMPLING TEAM: Marge Weiner, Jerry Maxwell
GW-24 sms ICF/EPAWEATHER: Sunny, warm, 75° SAMPLE LOCATION: GW-24WELL CONDITION: in tactMETHOD OF PURGING: Bennett piston pumpMETHOD OF SAMPLING: 2" PVC bailerPUMP TYPE, Dedicated/Portable:DEPTH OF WELL: 112.90 ft. CASING DIAMETER: 4"DEPTH TO WATER: 62.51 ft. WATER LEVEL INDICATOR MODEL: _____HEIGHT OF WATER: 50.39 ft. x 0.661 = WELL VOLUME 33.3 gal.TIME PURGING STARTS: 16:35 TIME PURGING COMPLETE: 18:15 PUMPING RATE: _____

pH Meter Serial #	<u>Buckman 21 (#1)</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
EC Meter Serial #	<u>VWR Grundig (#1) Model 604</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Turbidity Meter Serial #	<u>DAT-15C</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Other Meter:	_____	Calibrated: <input type="checkbox"/> yes <input type="checkbox"/> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
5/12/92	<u>16:10</u>	<u>33</u>	<u>22.4</u>	<u>2360</u>	<u>7.34</u>		
	<u>17:35</u>	<u>65</u>	<u>21.9</u>	<u>2360</u>	<u>7.27</u>		
	<u>18:05</u>	<u>100</u>	<u>22.6</u>	<u>2350</u>	<u>7.30</u>		
	<u>18:30</u>		<u>21.6</u>	<u>2060</u>	<u>7.05</u>	<u>1.75</u>	<u>final</u>

TIME SAMPLING STARTS: 18:10 TIME COMPLETE: 18:30 FINAL WATER DEPTH: 62.52SAMPLE ID NUMBER(S): YK981 (org.), NYJ117 (total), NYJ118 (DMA.)Comments/Problems: initial HNU = 0.2 ppm; 0 ppm after 5 minLogger's Initials MDW/JM

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/12/92 SAMPLING TEAM: Kathy Baylor, Tina DieboldWEATHER: warm to hot; intermittent cloudy and sunny; slight breeze SAMPLE LOCATION: GW-26 + lab QCWELL CONDITION: water in annular spaceMETHOD OF PURGING: PVC bailerMETHOD OF SAMPLING: teflon bailerPUMP TYPE, Dedicated/Portable: N/ADEPTH OF WELL: 62.88 ft. CASING DIAMETER: 4"DEPTH TO WATER: 61.33 ft. ^{48.88} WATER LEVEL INDICATOR MODEL: Powers K3HEIGHT OF WATER: 14.00 ft. ^{1.55} x 0.661 = WELL VOLUME 9.254 gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial # Orion Calibrated: X yes _____ no
 EC Meter Serial # VWR #2 Calibrated: X yes _____ no
 Turbidity Meter Serial # _____ Calibrated: X yes _____ no
 Other Meter: _____ Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
5/12/92	12:03	1st	22.5	2080	6.45		turbid
	12:15	2nd	22.0	1910	6.55		↓ decreasing Turbidity
	12:25	3rd	22.0	1830	6.60		
final	13:01	final	22.5	1930	6.40	4200 ^{T.D.} 5/12/92 or 4200 at 200 scale	

TIME SAMPLING STARTS: 12:31 TIME COMPLETE: 13:01 FINAL WATER DEPTH: 48.88 (50 inst + 13.04)

SAMPLE ID NUMBER(S): 18134 Case all RAS 18134 Case all RAS
 double volume for LAB QC 4K983 Voas, Pesticides, BNAs MYJ122 Dissolved MYJ121 Total + Total T.D. 5/12/92

Comments/Problems: 11:08 HNU reading 0.2

Powers Well Sondeer gave inaccurate reading, but consistent reading.
Four drops of 1:1 HNU were added to vials prior to sampling. An extra
preserved vial was filled with sample from the bailer, closed & shaken, and then the pH
in the vial was measured using the Orion pH meter - the pH was below 2.0.

The first 500 ml of dissolved metal sample took approx. 5 minutes to filter. The second 500 ml taken for Lab QC took 5 minutes using the same filter.

E-23

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/12/92 SAMPLING TEAM: EPA & ICF (Sue Sanders, Jerry M. & Marge W.)WEATHER: Warm & Partly Cloudy SAMPLE LOCATION: GW-28WELL CONDITION: Intact, good (exterior). Standing H₂O between well casing & inside of outside conductor casing.METHOD OF PURGING: bailerMETHOD OF SAMPLING: 3" PVC bailer for testing & 1 1/2" teflon bailerPUMP TYPE, Dedicated/Portable: N/ADEPTH OF WELL: 63.5 ft. CASING DIAMETER: 4"*DEPTH TO WATER: 50.54 ~~55.4~~ ^{mw} 50.54 ^{mw} ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 8.12 ^{mw} 9.6 ^{mw} ft. x 0.661 = WELL VOLUME 5.4 ^{mw} 8.6 gal.TIME PURGING STARTS: 11:00 TIME PURGING COMPLETE: 11:30 PUMPING RATE: N/A

pH Meter Serial #	<u>Beckman 21 (#1)</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
EC Meter Serial #	<u>VWR Scientific (#1) Model 404</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Turbidity Meter Serial #	<u>DRT-15C</u>	Calibrated:	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Other Meter:		Calibrated:	<input type="checkbox"/> yes	<input type="checkbox"/> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/12</u>	<u>11:10</u>	<u>5.4</u>	<u>22.9</u>	<u>2250</u>	<u>6.95</u>	<u>—</u>	
<u>↓</u>	<u>11:20</u>	<u>5.4</u>	<u>22.2</u>	<u>2300</u>	<u>6.91</u>	<u>—</u>	
<u>↓</u>	<u>11:30</u>	<u>5.4</u>	<u>22.3</u>	<u>2300</u>	<u>6.94</u>	<u>>200 NTU (final)</u>	

TIME SAMPLING STARTS: 11:40 TIME COMPLETE: 12:30 ^(*) FINAL WATER DEPTH: 50.54SAMPLE ID NUMBER(S): YK982 (ORG.), NYJ119 (Total), NYJ120 (Filtered)Comments/Problems: HNU reading = 0 ppm taken @ 10:40Water is brown, silty even after complete purging* Initial H₂O level was misread. Difference of about 3 gal.(*) sample for dissolved metals is taking longer to filter. the well was closed at 12:30.Logger's Initials MDW

over please →

E-24

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED / Santa Fe Springs, CA.DATE: 5/13/92 SAMPLING TEAM: Jerry McConnell, Margie WernerWEATHER: Hot & Sunny SAMPLE LOCATION: GW-30WELL CONDITION: for well #29 MW standing H₂O made dirty box GW-30 is good + intact.METHOD OF PURGING: Bennett Proton PumpMETHOD OF SAMPLING: 2" Teflon Bottle

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: 93.42 ft. CASING DIAMETER: 4"DEPTH TO WATER: 50.78 ft. WATER LEVEL INDICATOR MODEL: _____HEIGHT OF WATER: 42.64 ft. x 0.661 = WELL VOLUME 28.2 gal.TIME PURGING STARTS: 16:05 TIME PURGING COMPLETE: 17:05 PUMPING RATE: 1.3 GPM

pH Meter Serial # Blackman #21 (#1) Calibrated: ✓ yes no
 EC Meter Serial # VWR Scientific Model 614 Calibrated: ✓ yes no
 Turbidity Meter Serial # DRT-15C Calibrated: ✓ yes no
 Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>5/13</u>	<u>16:25</u>	<u>28</u>	<u>22.2</u>	<u>1600</u>	<u>7.16</u>		<u>clear</u>
	<u>16:40</u>	<u>28x2</u>	<u>22.0</u>	<u>1609</u>	<u>7.12</u>		
	<u>17:05</u>	<u>28x3</u>	<u>22.0</u>	<u>1620</u>	<u>7.09</u>		
	<u>17:35</u>		<u>21.5</u>	<u>1587</u>	<u>7.20</u>	<u>4.90</u>	<u>Final</u>

TIME SAMPLING STARTS: 17:10 TIME COMPLETE: 17:45 FINAL WATER DEPTH: 50.74SAMPLE ID NUMBER(S): YK984, 1175123 (total), 1175124 (Diss.)Comments/Problems: 15:45 - opened GW-29 by mistake. Initial depth of H₂O readings one incorrect.16:50 - opened GW-30. Hm reading of 0.0 ppm.Logger's Initials MDW/JM

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
 DATE: 5/12/92 SAMPLING TEAM: EPA 3 ICF (Gme S., Jerry M. & Mongie W.)
 WEATHER: Warm & Partly Cloudy SAMPLE LOCATION: GW-32 (Blank) ← Equip.
 WELL CONDITION: N/A
 METHOD OF PURGING: N/A
 METHOD OF SAMPLING: boiler (1 1/2" Teflon)
 PUMP TYPE, Dedicated/Portable: N/A
 DEPTH OF WELL: N/A ft. CASING DIAMETER: 4"
 DEPTH TO WATER: N/A ft. WATER LEVEL INDICATOR MODEL: _____
 HEIGHT OF WATER: N/A ft. x 0.661 = WELL VOLUME N/A gal.
 TIME PURGING STARTS: N/A TIME PURGING COMPLETE: N/A PUMPING RATE: N/A

pH Meter Serial # _____ Calibrated: yes no
 EC Meter Serial # _____ Calibrated: yes no
 Turbidity Meter Serial # _____ Calibrated: yes no
 Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

TIME SAMPLING STARTS: 11:50 TIME COMPLETE: 12:00 FINAL WATER DEPTH: N/A

SAMPLE ID NUMBER(S): YK987 (ORG.), NYJ129 (TOTAL), NYJ130 (Dissolved)

Comments/Problems: Equipment
Blank sample poured at GW-28.

Logger's Initials MDW

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/13/92 SAMPLING TEAM: Kathy ~~Beth~~ Baylor + Tina DieboldWEATHER: hot, sunny, slight breeze SAMPLE LOCATION: "GN-33" equip. blankWELL CONDITION: equipment blank - teflon bailer

METHOD OF PURGING: _____

METHOD OF SAMPLING: _____

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: ~1A ft. CASING DIAMETER: 4"

DEPTH TO WATER: _____ ft. WATER LEVEL INDICATOR MODEL: _____

HEIGHT OF WATER: _____ ft. x 0.661 = WELL VOLUME _____ gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial #	_____	Calibrated: _____ yes _____ no
EC Meter Serial #	_____	Calibrated: _____ yes _____ no
Turbidity Meter Serial #	_____	Calibrated: _____ yes _____ no
Other Meter: _____	_____	Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

TIME SAMPLING STARTS: 8:57 TIME COMPLETE: 9:10 FINAL WATER DEPTH: _____SAMPLE ID NUMBER(S): 41988 RAS VOAS, BNAS + PESTICIDES/PCBS
MYJ131 RAS TOTAL METALS; MYJ132 RAS DISSOLVED METALSComments/Problems: _____

_____Logger's Initials T.D.

E-27

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 5/13/92 SAMPLING TEAM: Kathy Baylor + Tina DieboldWEATHER: sunny, hot, breezy SAMPLE LOCATION: "GW-34"WELL CONDITION: field blank poured near GW-04

METHOD OF PURGING: _____

METHOD OF SAMPLING: _____

PUMP TYPE, Dedicated/Portable: _____

DEPTH OF WELL: _____ ft. CASING DIAMETER: 4"

DEPTH TO WATER: _____ ft. WATER LEVEL INDICATOR MODEL: _____

HEIGHT OF WATER: _____ ft. x 0.661 = WELL VOLUME _____ gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial #	_____	Calibrated: _____ yes _____ no
EC Meter Serial #	_____	Calibrated: _____ yes _____ no
Turbidity Meter Serial #	_____	Calibrated: _____ yes _____ no
Other Meter: _____	_____	Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

TIME SAMPLING STARTS: 16:40 TIME COMPLETE: 16:42 FINAL WATER DEPTH: _____SAMPLE ID NUMBER(S): RAS VOAS YK989RASTOT. METALS MYJ133; dissolved MYJ134Comments/Problems: Field Blank for VOAs + Metals only

_____Logger's Initials KB

E-28

T.O.

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
 DATE: 8/11/92 SAMPLING TEAM: Sakamoto, Baylor, Jolley
 WEATHER: clear, warm SAMPLE LOCATION: GW-01, GW-12 (Dupe)
 WELL CONDITION: Good
 METHOD OF PURGING: PVC Bailer
 METHOD OF SAMPLING: Teflon Bailer
 PUMP TYPE, Dedicated/Portable: N/A
 DEPTH OF WELL: 58.0 ft. CASING DIAMETER: 4"
 DEPTH TO WATER: 43.18 ft. WATER LEVEL INDICATOR MODEL: Solinst
 HEIGHT OF WATER: 14.82 ft. x 0.661 = WELL VOLUME 9.8 gal.
 TIME PURGING STARTS: 3:45 TIME PURGING COMPLETE: 4:30 PUMPING RATE: N/A

pH Meter Serial #	_____	Calibrated: <u>yes</u> <u>no</u>
EC Meter Serial #	_____	Calibrated: <u>yes</u> <u>no</u>
Turbidity Meter Serial #	_____	Calibrated: <u>yes</u> <u>no</u>
Other Meter:	_____	Calibrated: <u>yes</u> <u>no</u>

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/11/92	4:00 PM	10 gal	22.0	2490	7.14		First Purge
"	4:07 PM	20 gal	22.1	2470	7.24		2nd "
"	4:27 PM	30 gal	22.0	2440	7.42		3rd "
8/11/92	5:12	-	22.3	2480	7.35	37	Final

TIME SAMPLING STARTS: 4:40^{PM} TIME COMPLETE: 5:10^{PM} FINAL WATER DEPTH: 43.19
 SAMPLE ID NUMBER(S): GW-01, GW-12, YL338

Comments/Problems: HNU 0.02

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
DATE: 8/12/92 SAMPLING TEAM: Baybr, Johnson, Jolley
WEATHER: Clear, warm SAMPLE LOCATION: GW-02
WELL CONDITION: OK - No lock
METHOD OF PURGING: PVC Bailer
METHOD OF SAMPLING: Teflon Bailer
PUMP TYPE, Dedicated/Portable: N/A
DEPTH OF WELL: 53.0 ft. CASING DIAMETER: 4"
DEPTH TO WATER: 38.94 ft. WATER LEVEL INDICATOR MODEL: _____
HEIGHT OF WATER: 14.06 ft. x 0.661 = WELL VOLUME 9.3 gal.
TIME PURGING STARTS: 9:35 TIME PURGING COMPLETE: 10:02 PUMPING RATE: N/A

pH Meter Serial # _____ Calibrated: yes no
EC Meter Serial # _____ Calibrated: yes no
Turbidity Meter Serial # _____ Calibrated: yes no
Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>8/12/92</u>	<u>9:45 AM</u>	<u>10 gal</u>	<u>22.2</u>	<u>2290</u>	<u>7.27</u>		<u>First Purge</u>
<u>8/12/92</u>	<u>9:54 AM</u>	<u>20 gal</u>	<u>21.8</u>	<u>2270</u>	<u>7.39</u>		<u>2nd Purge</u>
<u>8/12/92</u>	<u>10:02 AM</u>	<u>30 gal</u>	<u>21.5</u>	<u>2280</u>	<u>7.32</u>		<u>3rd Purge</u>
<u>8/12/92</u>	<u>10:16</u>	<u>-</u>	<u>22.6</u>	<u>2250</u>	<u>7.25</u>	<u>39</u>	<u>Final</u>

TIME SAMPLING STARTS: 10:05 AM TIME COMPLETE: 10:16 FINAL WATER DEPTH: 38.94

SAMPLE ID NUMBER(S): GW-02, YL327, MYJ604, MYJ635

Comments/Problems: #NO = 0.2

E-30

Logger's Initials KB

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/13/92 SAMPLING TEAM: Sakamoto, JolleyWEATHER: clear, warm SAMPLE LOCATION: GW-04WELL CONDITION: GoodMETHOD OF PURGING: PVC BailerMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: N/ADEPTH OF WELL: 68.74 ft. CASING DIAMETER: 4"DEPTH TO WATER: 56.50 ft. WATER LEVEL INDICATOR MODEL: _____HEIGHT OF WATER: 12.24 ft. x 0.661 = WELL VOLUME 8.03 gal.

TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial #	_____	Calibrated: _____ yes _____ no
EC Meter Serial #	_____	Calibrated: _____ yes _____ no
Turbidity Meter Serial #	_____	Calibrated: _____ yes _____ no
Other Meter: _____	_____	Calibrated: _____ yes _____ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/13/92	9:27	8.00	21.1	1714	6.94	_____	1st purge
8/13/92	9:35	16.0	21.6	1707	6.91	_____	2nd purge
8/13/92	9:47	30.0	21.0	1685	6.95	_____	3rd purge
8/13/92	10:05	Final	21.7	1655	6.97	off scale past 100	final

TIME SAMPLING STARTS: 9:55 TIME COMPLETE: 10:05 FINAL WATER DEPTH: 56.53

SAMPLE ID NUMBER(S): _____

Comments/Problems: HNU

Logger's Initials _____

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/12/92 SAMPLING TEAM: Sakamoto, Johnson, JolleyWEATHER: Warm clearSAMPLE LOCATION: GW-07, GW-17 (Dupe)WELL CONDITION: GoodMETHOD OF PURGING: RaiseMETHOD OF SAMPLING: TEFLON 2"PUMP TYPE, Dedicated/Portable: —DEPTH OF WELL: 58.28 ft. CASING DIAMETER: 4"DEPTH TO WATER: 45.33 ft. WATER LEVEL INDICATOR MODEL: solidHEIGHT OF WATER: 12.95 ft. $\times 0.661 =$ WELL VOLUME 8.56 (8.6) gal.TIME PURGING STARTS: 7:35 TIME PURGING COMPLETE: — PUMPING RATE: —

pH Meter Serial #	<u>—</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
EC Meter Serial #	<u>—</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Turbidity Meter Serial #	<u>DRJ-15C</u>	Calibrated: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Other Meter:	<u>—</u>	Calibrated: <input type="checkbox"/> yes <input type="checkbox"/> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/12/92	7:50A	9gal	23.3	2520	7.03	—	1st Purge
8/12/92	7:55A	18gal	21.9	2510	7.00	—	2nd purge
8/12/92	8:07A	27gal	21.9	2550	7.07	—	3rd Purge
8/12/92	8:37A	—	23.0	2440	7.27	44.1 ^{at 20°} NTU	final

TIME SAMPLING STARTS: 7:50 TIME COMPLETE: 8:37 FINAL WATER DEPTH: 45.33SAMPLE ID NUMBER(S): GW07, GW17 (Dupe)Comments/Problems: WD-40 used on lock #3Logger's Initials —

E-32

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/13/92 SAMPLING TEAM: Johnson, SakamotoWEATHER: clear, warm SAMPLE LOCATION: 6W-10WELL CONDITION: GoodMETHOD OF PURGING: PVC BailerMETHOD OF SAMPLING: Teller BailerPUMP TYPE, Dedicated/Portable: N/ADEPTH OF WELL: 58.0 ft. CASING DIAMETER: 4"DEPTH TO WATER: 45.83 ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 12.17 ft. x 0.661 = WELL VOLUME 8.07 gal.TIME PURGING STARTS: 8:00^{AM} TIME PURGING COMPLETE: 8:19^{AM} PUMPING RATE: N/A

pH Meter Serial #	<u>2</u>	Calibrated: <input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
EC Meter Serial #	<u>2</u>	Calibrated: <input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
Turbidity Meter Serial #		Calibrated: <input type="checkbox"/> yes	<input type="checkbox"/> no
Other Meter:		Calibrated: <input type="checkbox"/> yes	<input type="checkbox"/> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/13/92	8:07	8 gal	22.7	1950	6.64		1st purge
8/13/92	8:10A	16 gal	22.2	1950	6.90		2nd purge
8/13/92	8:19A	24 gal	22.5	1890	6.96		3rd purge
8/13/92	8:30	32 gal	22.6	1920	6.90	42	final

TIME SAMPLING STARTS: 8:07A TIME COMPLETE: 8:30A FINAL WATER DEPTH: 45.84

SAMPLE ID NUMBER(S): _____

Comments/Problems: Annular Space = 30 in. H₂O on
opening FB H₂O = 0
Water measured 0.6

Logger's Initials FB

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/13/92 SAMPLING TEAM: Johnson, SakamotoWEATHER: Clear, warm SAMPLE LOCATION: GW-11WELL CONDITION: GoodMETHOD OF PURGING: Piston PumpMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: PortableDEPTH OF WELL: 128.4 ft. CASING DIAMETER: 4"DEPTH TO WATER: 46.21 ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 82.19 ft. x 0.661 = WELL VOLUME 54.32 gal.TIME PURGING STARTS: 8:06 AM TIME PURGING COMPLETE: PUMPING RATE: 1.3 gpm

42 m³/purge

pH Meter Serial #	<u>2</u>	Calibrated: <u>✓</u> yes <u>no</u>
EC Meter Serial #	<u>2</u>	Calibrated: <u>✓</u> yes <u>no</u>
Turbidity Meter Serial #	<u>094-15C</u>	Calibrated: <u>yes</u> <u>no</u>
Other Meter:		Calibrated: <u>yes</u> <u>no</u>

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>8/13/92</u>	<u>8:48</u>	<u>54 gal</u>	<u>22.0</u>	<u>2200</u>	<u>7.01</u>		
<u>8/13/92</u>	<u>9:30 AM</u>	<u>108 gal</u>	<u>22.5</u>	<u>2200</u>	<u>7.01</u>		
<u>8/13/92</u>	<u>10:12 AM</u>	<u>150 gal</u>	<u>22.4</u>	<u>2200</u>	<u>7.03</u>		
<u>8/13/92</u>	<u>10:52</u>		<u>22.4</u>	<u>2220</u>	<u>7.18</u>	<u>1.50</u>	

TIME SAMPLING STARTS: 10:40 TIME COMPLETE: 10:52 FINAL WATER DEPTH: 46.2SAMPLE ID NUMBER(S): GW 11

Comments/Problems: H₂O = 30 m annular space (water,
possible parking lot run-off) Bayley, Sakamoto
wore APRs Water measured 0.6

Logger's Initials KJ

E-34

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/12/92 SAMPLING TEAM: Sakamoto, JohnsonWEATHER: clear, warm SAMPLE LOCATION: GW-23WELL CONDITION: GoodMETHOD OF PURGING: RVC BailerMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: N/ADEPTH OF WELL: 63.36 m 58.0 ft. CASING DIAMETER: 4"DEPTH TO WATER: 57.80 ft. WATER LEVEL INDICATOR MODEL: SolinstHEIGHT OF WATER: 6.18 ft. x 0.661 = WELL VOLUME 4.08 gal.TIME PURGING STARTS: 1:00 PM TIME PURGING COMPLETE: 1:30 PM PUMPING RATE: N/A

pH Meter Serial #	<u>1</u>	Calibrated:	<u>✓</u> yes	<u>no</u>
EC Meter Serial #	<u>1</u>	Calibrated:	<u>✓</u> yes	<u>no</u>
Turbidity Meter Serial #	<u>DET-155</u>	Calibrated:	<u>✓</u> yes	<u>no</u>
Other Meter:		Calibrated:	<u>yes</u>	<u>no</u>

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/12/92	1:10 PM	4 gal	22.7	2310	6.89		1st purge
"	1:20 PM	8 gal	23	2310	6.86		2nd purge
"	1:30	12	23.3	2270	7.04		3rd purge
8/12/92	1:40	12	24.9	2280	7.16	95.0	final

TIME SAMPLING STARTS: 1:55 PM TIME COMPLETE: 2:05 PM FINAL WATER DEPTH: 57.19SAMPLE ID NUMBER(S) GW-23, YL333, MYJ615, MYJ616Comments/Problems: HOW 0.5 units W040Logger's Initials FB

E-35

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATEDDATE: 8/12/92 SAMPLING TEAM: Sakamoto, JohnsonWEATHER: clear, warm SAMPLE LOCATION: GW-24WELL CONDITION: GoodMETHOD OF PURGING: Piston PumpMETHOD OF SAMPLING: Teflon BailerPUMP TYPE, Dedicated/Portable: Piston Pump // PortableDEPTH OF WELL: ~~128~~ 112.9 ft. CASING DIAMETER: 4"DEPTH TO WATER: 57.00 ft. WATER LEVEL INDICATOR MODEL: _____HEIGHT OF WATER: 71.4 ^{56.9} ft. x 0.661 = WELL VOLUME 47.19 ~~47.2~~ gal. ^{36.9 = 37.0}TIME PURGING STARTS: 12:45 TIME PURGING COMPLETE: 2:34 PUMPING RATE: _____

pH Meter Serial # _____	Calibrated: <u>yes</u> <u>no</u>
EC Meter Serial # _____	Calibrated: <u>yes</u> <u>no</u>
Turbidity Meter Serial # _____	Calibrated: <u>yes</u> <u>no</u>
Other Meter: _____	Calibrated: <u>yes</u> <u>no</u>

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/12/92	1:30	47gal	23.6	2730	7.20		1st purge
"	1:51	31"	23.2	2710	7.34		2nd "
8/12/92	2:34	37gal	24.3	2720	7.26		3rd "
8/12/92	3:00 PM	-	23.0	2710	7.31		Final

TIME SAMPLING STARTS: 2:38 PM TIME COMPLETE: 3:00 PM FINAL WATER DEPTH: 61.46

SAMPLE ID NUMBER(S): _____

Comments/Problems: HPL 0.4 unitsLogger's Initials RP

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
 DATE: 8/11/92 SAMPLING TEAM: Baylor, Johnson, Sekanory
 WEATHER: Clear, warm SAMPLE LOCATION: GW-26 (lab QC)
 WELL CONDITION: Rusted lock opened w/ WD-40
 METHOD OF PURGING: PVC Bailer
 METHOD OF SAMPLING: Teflon Bailer
 PUMP TYPE, Dedicated/Portable: N/A
 DEPTH OF WELL: 62.88 ft. CASING DIAMETER: 4"
 DEPTH TO WATER: 48.08 ft. WATER LEVEL INDICATOR MODEL: _____
 HEIGHT OF WATER: 14.80 ft. x 0.661 = WELL VOLUME 9.8 gal.
 TIME PURGING STARTS: 1:50 PM TIME PURGING COMPLETE: 2:20 PUMPING RATE: N/A

pH Meter Serial # _____ Calibrated: yes no
 EC Meter Serial # _____ Calibrated: yes no
 Turbidity Meter Serial # _____ Calibrated: yes no
 Other Meter: _____ Calibrated: yes no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/11/92	1:59 PM	10 gal	26.5	2250	6.74		First Purge
8/11/92	2:09 PM	20 gal	23.0	2260	7.01		2nd Purge
8/11/92	2:20	30 gal	22.9	2250	6.75		3rd Purge
8/11/92	2:45 PM	—	23.0	2270	6.61	99	Final

TIME SAMPLING STARTS: 2:25 TIME COMPLETE: 2:40 PM FINAL WATER DEPTH: 48.09

SAMPLE ID NUMBER(S): GW-26, YL336, MYJ621, MYJ622

Comments/Problems: Lock Rusted Shut - loosened w/ WD-40
#Nu read 4 at opening - quickly lowered to 1. Reading appears to be from WD-40 and water in traffic box. Reading in well = 0.8

2:25 PM Sustained #Nu in well = 1

Logger's Initials KB

E-37

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
 DATE: 8/11/92 SAMPLING TEAM: Baylor/Johnson/Jolley/Sakamoto
 WEATHER: warm, clear SAMPLE LOCATION: GW 28
 WELL CONDITION: Good
 METHOD OF PURGING: PVC Bailer
 METHOD OF SAMPLING: Teflon Bailer
 PUMP TYPE, Dedicated/Portable: N/A
 DEPTH OF WELL: 63.5 ft. CASING DIAMETER: 4"
 DEPTH TO WATER: 49.80 ft. WATER LEVEL INDICATOR MODEL: Solinst
 HEIGHT OF WATER: 13.7 ft. x 0.661 = WELL VOLUME 9.1 gal.
 TIME PURGING STARTS: _____ TIME PURGING COMPLETE: _____ PUMPING RATE: _____

pH Meter Serial # 2 Calibrated: ☒ yes ☐ no
 EC Meter Serial # 2 Calibrated: ☒ yes ☐ no
 Turbidity Meter Serial # ORT-15C Calibrated: ☒ yes ☐ no
 Other Meter: _____ Calibrated: ☐ yes ☐ no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
8/11/92	11:30	9 gal	24.5°	2380	6.56		1st purge.
8/11/92	11:40	18 "	25.4°	2340	6.64		2nd purge
8/11/92	11:50	27 gal	24.8	2370	6.59		3 rd Purge
8/11/92	12:03	final	26.0	2390 26.04	6.58	200+	final

TIME SAMPLING STARTS: 11:55 TIME COMPLETE: 12:05 FINAL WATER DEPTH: 49.80
 SAMPLE ID NUMBER(S): YL335, MYJ619, MYJ620,

Comments/Problems: HNu = 0

E-38

Logger's Initials KB

GW30

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED

DATE: 8/12/92 SAMPLING TEAM: Sakamoto, Johnson

WEATHER: Hot, sunny SAMPLE LOCATION: GW-30

WELL CONDITION: Good

METHOD OF PURGING: Piston pump

METHOD OF SAMPLING: 2 inch PVC Bailer

PUMP TYPE, Dedicated/Portable: Portable

DEPTH OF WELL: 93.42 ft. CASING DIAMETER: 4"

DEPTH TO WATER: 50.00 ft. WATER LEVEL INDICATOR MODEL: SOLINST

^{43.42} HEIGHT OF WATER: 43.42 ft. x 0.661 = WELL VOLUME 28.70 gal.

TIME PURGING STARTS: 4:37 TIME PURGING COMPLETE: PUMPING RATE:

pH Meter Serial #	<u>2</u>	Calibrated: <u>✓</u> yes <u> </u> no
EC Meter Serial #	<u>2</u>	Calibrated: <u>✓</u> yes <u> </u> no
Turbidity Meter Serial #	<u>DR T-55</u>	Calibrated: <u>✓</u> yes <u> </u> no
Other Meter:	<u> </u>	Calibrated: <u>✓</u> yes <u> </u> no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
<u>8/12/92</u>	<u>5:06p</u>	<u>29</u>	<u>23.0</u>	<u>1680</u>	<u>7.50</u>	<u> </u>	<u>1st purg</u>
<u>8/12/92</u>	<u>5:35p</u>	<u>29</u>	<u>23.5</u>	<u>1710</u>	<u>7.40</u>	<u> </u>	<u>2nd</u>
<u>8/12/92</u>	<u>6:05p</u>	<u>29</u>	<u>23.7</u>	<u>1810</u>	<u>7.41</u>	<u> </u>	<u>3rd</u>
<u>8/12/92</u>	<u>6:30p</u>	<u> </u>	<u>22.8</u>	<u>1750</u>	<u>7.37</u>	<u>4.76</u> ^{at 20 °C}	<u>end</u>

TIME SAMPLING STARTS: 5:06p TIME COMPLETE: 6:33 FINAL WATER DEPTH: 50.0

SAMPLE ID NUMBER(S): GW-30

Comments/Problems: None 0.2

Logger's Initials JS

E-39

535 5.06 29

GROUNDWATER PURGING/SAMPLING LOG

SITE NAME/ADDRESS: WASTE DISPOSAL, INCORPORATED
 DATE: 8/11/92 SAMPLING TEAM: Sakamoto, Johnson
 WEATHER: warm (85+) SAMPLE LOCATION: Black Gw-32
 WELL CONDITION: —

METHOD OF PURGING: —

METHOD OF SAMPLING: —

PUMP TYPE, Dedicated/Portable: —

DEPTH OF WELL: — ft. CASING DIAMETER: 4"

DEPTH TO WATER: — ft. WATER LEVEL INDICATOR MODEL: —

HEIGHT OF WATER: — ft. x 0.661 = WELL VOLUME — gal.

TIME PURGING STARTS: — TIME PURGING COMPLETE: — PUMPING RATE: —

pH Meter Serial # — Calibrated: — yes — no
 EC Meter Serial # — Calibrated: — yes — no
 Turbidity Meter Serial # — Calibrated: — yes — no
 Other Meter: — Calibrated: — yes — no

DATE	TIME	VOLUME	T °C	EC	pH	TURBIDITY	COMMENTS
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—

TIME SAMPLING STARTS: 10:00 AM TIME COMPLETE: — FINAL WATER DEPTH: —

SAMPLE ID NUMBER(S): GW-32, YL340, MYJ629, MYJ630

Comments/Problems: —
—
—
—
—

Logger's Initials KJ

E-40

APPENDIX F
WELL CONDITION INVENTORY LOGS

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-01
Date: 12/16/91 Time: 4:54 PM Logger: K. Baylor
Ambient Air Temp (°C): 20°C Weather: overcast, cool
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): Good (parking lot)
Ease of locating well (Easy/Difficult): Easy
Access Type (Lock, Hex Bolt, etc.): Hex bolt
Well Cover Integrity (Good/OK/Bad): OK rusted steel plate
Well Head Integrity (Good/OK/Bad): OK (PVC cap)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/Even/Above)
Does it appear that water is ever able to pond over wellhead?: yes
USGS Survey data on well cover: None
Initial HNu reading: 0 Sustained HNu reading: 0
Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location black mark on casing
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: —
Depth to Groundwater: 46.24' Well Construction Depth: 58.00'
Well depth info from: measured w/ weighed tape
Standing water volume (.661 gal/ft for 4" well): 7.8 gal
Water Level Indicator used: Solinst
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

located in
parking lot in front
of 9606/9608 Santa Fe Springs Rd.

107.27

F-1

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-02
Date: 1/12/91 Time: 11:25 Logger: K. Baylor
Ambient Air Temp (°C): 17°C Weather: cool, overcast
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): OK (paved area)
Ease of locating well (Easy/Difficult): Easy
Access Type (Lock, Hex Bolt, etc.): Hex bolt
Well Cover Integrity (Good/OK/Bad): OK (steel cover/no lock)
Well Head Integrity (Good/OK/Bad): OK (PVC Cap)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/Even/Above)
Does it appear that water is ever able to pond over wellhead?: Yes
USGS Survey data on well cover: None
Initial HNu reading: 0.4 Sustained HNu reading: —
Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location black mark on casing
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: —
Depth to Groundwater: 41.76 Well Construction Depth: 52.96
Well depth info from: Weighted Tape
Standing water volume (.661 gal/ft for 4" well): 7.4 gal
Water Level Indicator used: Solnot
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

No screws in cover
No lock on steel cover
Steel cover apparently cut off by facility due to nearby construction.

107.85

~~111.75~~

WELL CONDITION INVENTORY LOG

Site: W1 Well ID: GW-03

Date: 12/17 Time: 1055a Logger: SMS

Ambient Air Temp (°C): 25° Weather: PC

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): Good

Ease of locating well (Easy/Difficult): Easy

Access Type (Lock, Hex Bolt, etc.): Hex

Well Cover Integrity (Good/OK/Bad): Cover, But lock left off

Well Head Integrity (Good/OK/Bad): Mobile home storage

Well Casing Diameter (2"/4"/other): 4

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: No

USGS Survey data on well cover: _____

Initial HNu reading: 22 Sustained HNu reading: 22

Is casing marked with water level measuring point (Yes/No): _____
If yes, give type/location _____

Downhole Problems (Yes/No): _____

Nature of Problem/Corrective Method: _____

Depth to Groundwater: 60.22 Well Construction Depth: 68.60

Well depth info from: Weighted Tape

Standing water volume (.661 gal/ft for 4" well): 5.5 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

HNu of 22 sustained

WELL CONDITION INVENTORY LOG

Site: W.D.I. Well ID: GW-04
 Date: 12/17/91 Time: 9:22 AM Logger: K. Baylor
 Ambient Air Temp (°C): 18°C Weather: Partly, cool
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Bad (high grass)
 Ease of locating well (Easy/Difficult): Difficult (high grass)
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusted steel cover)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.4 Sustained HNu reading: —
 Is casing marked with water level measuring point (Yes/No): yes
 If yes, give type/location black mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 59.24 Well Construction Depth: 68.74
 Well depth info from: Weighted Tape
 Standing water volume (.661 gal/ft for 4" well): 6.3 gal
 Water Level Indicator used: Salinist
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

Traffic box full
of water

Keyed alike
to well # 31

107.77

F-41

WELL CONDITION INVENTORY LOG

Site: WDF Well ID: GW-5
 Date: 12/17/11 Time: 9:10 Logger: K. Bayler
 Ambient Air Temp (°C): 18°C Weather: hazy, warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): OK
 Ease of locating well (Easy/Difficult): Difficult (high grass)
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel plate)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: No
 USGS Survey data on well cover: None
 Initial HNu reading: 0.8 Sustained HNu reading: 0.6
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 59.78 Well Construction Depth: 64.16
 Well depth info from: weighted tape
 Standing water volume (.661 gal/ft for 4" well): 2.9 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown
 Comments:

107.14
~~406.89~~ KB

F-5

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-06
Date: 12/17/91 Time: 10:05^{AM} Logger: K. Beyer
Ambient Air Temp (°C): 20°C Weather: P/c cloudy, warm
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): Bad (rough terrain
high grass)
Ease of locating well (Easy/Difficult): Extremely Difficult (high grass)
Access Type (Lock, Hex Bolt, etc.): Hex Bolt
Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
Well Head Integrity (Good/OK/Bad): OK (PVC cap)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/Even/Above)
Does it appear that water is ever able to pond over wellhead?: yes
USGS Survey data on well cover: None
Initial HNu reading: 0.4 Sustained HNu reading: —
Is casing marked with water level measuring point (Yes/No): Yes
— If yes, give type/location black mark on casing
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: —
Depth to Groundwater: 51.60 Well Construction Depth: 63.34
Well depth info from: Weighted Tape
Standing water volume (.661 gal/ft for 4" well): 7.8 gal
Water Level Indicator used: Solinst
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk
Comments:

107.03
107.2348

F-6

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-07
 Date: 12/17/94 Time: 10:14 Logger: K. Bayler
 Ambient Air Temp (°C): 20°C Weather: p/cloudy, warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Bad (rough terrain, high grass)
 Ease of locating well (Easy/Difficult): Difficult (high grass)
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel plate)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above): Even
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.4 Sustained HNu reading: —
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 47.98' Well Construction Depth: 58.28'
 Well depth info from: Weighted Tape
 Standing water volume (.661 gal/ft for 4" well): 6.8 gal
 Water Level Indicator used: Solinet
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

Traffic Box full
 of water
 (oily sheen)

106.80

F-7

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-08
 Date: 12/17/91 Time: 10:35 Logger: K Baylor
 Ambient Air Temp (°C): 18°C Weather: overcast, cool
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Good (parking lot in RV storage)
 Ease of locating well (Easy/Difficult): Easy
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level ~~(Below)~~ Even/Above)
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.2 Sustained HNu reading: 0.2
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location blue mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 56.64' Well Construction Depth: 63.00'
 Well depth info from: Weighted Tape
 Standing water volume (.661 gal/ft for 4" well): 4.2 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown
 Comments:

106.74

F-8

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: 6W-09
 Date: 12/14/91 Time: 4:36 Logger: K Baylor
 Ambient Air Temp (°C): 22°C Weather: overcast, cool
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Good (parking lot in Mersit's)
 Ease of locating well (Easy/Difficult): Easy
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: Yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.2 Sustained HNu reading: 0.2 ppm
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 46.98 Well Construction Depth: 57.72
 Well depth info from: Measured w/ weighted tape
 Standing water volume (.661 gal/ft for 4" well): 7.1 gal
 Water Level Indicator used: Solomat
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

Traffic Box full of water -
 owner (Mersit's) complains that
 water runs off WDT to his
 property.

James Mersit
 F-9

106.54

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW^{SH}~~10~~ ^{Shallow} ~~Intermediate~~ ~~GW^{SH}~~10~~~~ GW-10

Date: 12/18/91 Time: 1547 Logger: SMSimpson

Ambient Air Temp (°C): 26° Weather: Hazing Overcast

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): Good

Ease of locating well (Easy/Difficult): Fairly

Access Type (Lock, Hex Bolt, etc.): Hex

Well Cover Integrity (Good/OK/Bad): OK

Well Head Integrity (Good/OK/Bad): OK

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: Yes

USGS Survey data on well cover: NO

Initial HNu reading: 5 ppm Sustained HNu reading: 2.5

Is casing marked with water level measuring point (Yes/No): Unk.
If yes, give type/location _____

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: —

Depth to Groundwater: 48.58 Well Construction Depth: 58.00

Well depth info from: Case weighted tape

Standing water volume (.661 gal/ft for 4" well): 6.22 gal

Water Level Indicator used: Solinst

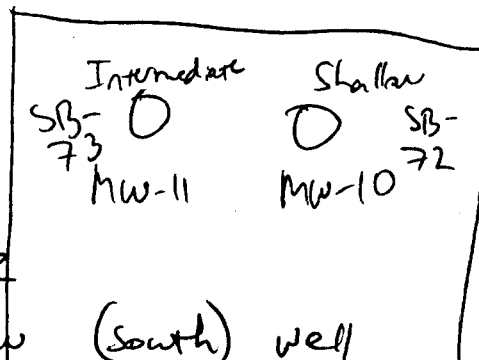
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

WDI

Identification error
in labelling of
wells, MW-11

is designated as
intermediate (north)
well. MW-10 is shallow



(south) well

F-10

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-10 11
 Date: 12/16/91 Time: 3:50 Logger: K. Bayler Int Well
 Ambient Air Temp (°C): 27° C Weather: hazy, warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Good parking lot behind Dia-log
 Ease of locating well (Easy/Difficult): Difficult
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): Bad (No steel cover)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.2 Sustained HNu reading: 0.2
 Is casing marked with water level measuring point (Yes/No): Unk
 If yes, give type/location _____
 Downhole Problems (Yes/No): None
 Nature of Problem/Corrective Method: _____

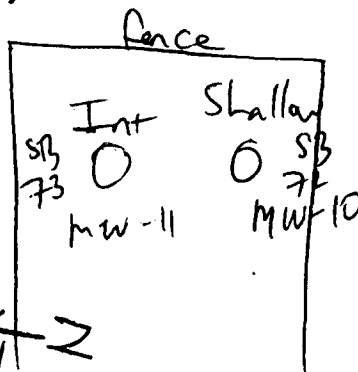
 Depth to Groundwater: 48.96 Well Construction Depth: 128.40
 Well depth info from: weighted tape
 Standing water volume (.661 gal/ft for 4" well): 52.5 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

Identification error in labelling of wells. MW-11 is designated as Intermediate (north) well.

MW-10 is shallow (south) well ← 2
~~106.15/13~~

WDI



WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-13

Date: 12/16/91 Time: 3:08 Logger: K. Baylor

Ambient Air Temp (°C): 27°C Weather: hazy, warm

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): OK

Ease of locating well (Easy/Difficult): Difficult (see below)

Access Type (Lock, Hex Bolt, etc.): Hex bolt (tight)

Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)

Well Head Integrity (Good/OK/Bad): OK (PVC cap)

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: Yes

USGS Survey data on well cover: None

Initial HNu reading: 1.8 ppm Sustained HNu reading: 1.8 ppm

Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location black mark on casing

Downhole Problems (Yes/No): None

Nature of Problem/Corrective Method: —

Depth to Groundwater: 51.38 Well Construction Depth: 58.70

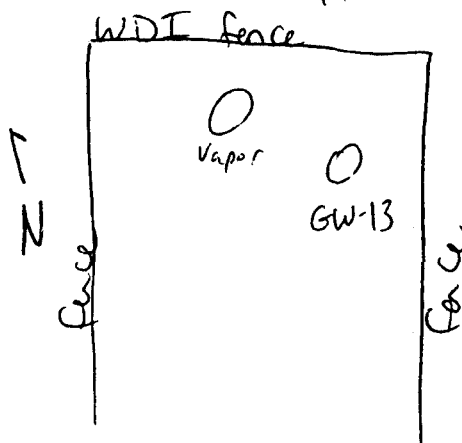
Well depth info from: Measurement by weighed tape

Standing water volume (.661 gal/ft for 4" well): 4.8 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments: Well is located near vapor well, MW-13 is the access cover to the east



F-12

106.14/

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-14
 Date: 12/14/91 Time: 2:03^{pm} Logger: K. Baxler
 Ambient Air Temp (°C): 27°C Weather: clear, warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Good (parking lot)
 Ease of locating well (Easy/Difficult): Easy (behind Rolero Plastics)
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK rusty steel cover
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.4 Sustained HNu reading: 0.4
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark on w. side
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 51.55' Well Construction Depth: 57.70'
 Well depth info from: Weighted Tape
 Standing water volume (.661 gal/ft for 4" well): 4.1 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

Unlocked New lock installed

106.12

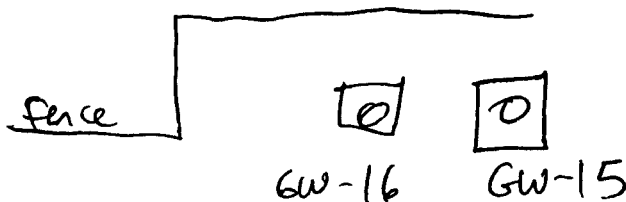
F-13

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-15
 Date: 12/17/91 Time: 8:29 Logger: K. Baylor
 Ambient Air Temp (°C): _____ Weather: lazy, cool
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): Bad (tall grass)
 Ease of locating well (Easy/Difficult): Difficult (tall grass)
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK steel cover
 Well Head Integrity (Good/OK/Bad): OK PVC cap
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above) Even
 Does it appear that water is ever able to pond over wellhead?: No
 USGS Survey data on well cover: None
 Initial HNu reading: 0.4 Sustained HNu reading: _____
 Is casing marked with water level measuring point (Yes/No): Yes
 _____ If yes, give type/location black marker casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —

Depth to Groundwater: 56.82 Well Construction Depth: 68.38'
 Well depth info from: Weighed tape
 Standing water volume (.661 gal/ft for 4" well): 7.6 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:



Map shows
opposite

106.48

F-14

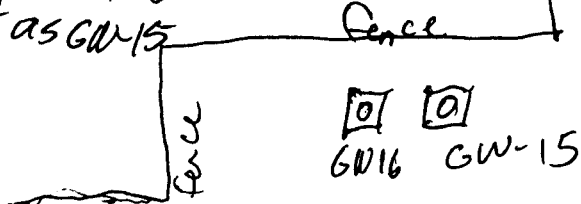
WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-16
Date: 12/17 Time: 823 Logger: K. Baylor
Ambient Air Temp (°C): _____ Weather: PC
Condition of Barriers/type (Good/Bad/None): N
Accessibility by vehicle (Good/OK/Bad): OK
Ease of locating well (Easy/Difficult): Dif Grassy
Access Type (Lock, Hex Bolt, etc.): Hex
Well Cover Integrity (Good/OK/Bad): OK locked
Well Head Integrity (Good/OK/Bad): OK
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/Even/Above) Even
Does it appear that water is ever able to pond over wellhead?: NO
USGS Survey data on well cover: NO
Initial HNu reading: 0.6 Sustained HNu reading: _____
Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location black marker casing
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: _____

Depth to Groundwater: 57.16 Well Construction Depth: 78.80
Well depth info from: Solinst
Standing water volume (.661 gal/ft for 4" well): 14.3 gal
Water Level Indicator used: Solinst
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments: Tall dry grass

Map show it as GW-15



WDT

F-15

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: W1^{KS} GW-18
Date: 12/16/91 Time: 12:10 Logger: K. Baylor
Ambient Air Temp (°C): 25°C Weather: warm, clear
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): Good
Ease of locating well (Easy/Difficult): Easy
Access Type (Lock, Hex Bolt, etc.): hex bolt
Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
Well Head Integrity (Good/OK/Bad): OK (PVC cap)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/~~Even~~/^{KB}Above)
Does it appear that water is ever able to pond over wellhead?: yes
USGS Survey data on well cover: None
Initial HNu reading: 0 Sustained HNu reading: 0
Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark on SW side
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: —
Depth to Groundwater: 53.30 Well Construction Depth: 71.06'
Well depth info from: measured w/weighted tape
Standing water volume (.661 gal/ft for 4" well): 11.7 gal
Water Level Indicator used: Solinst
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk
Comments:

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-19
 Date: 12/16/91 Time: 12:20 Logger: K. Baylor
 Ambient Air Temp (°C): 25°C Weather: P.C / warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): OK (on gravel)
 Ease of locating well (Easy/Difficult): Easy
 Access Type (Lock, Hex Bolt, etc.): hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
 Well Head Integrity (Good/OK/Bad): OK (pvc cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above)
 Does it appear that water is ever able to pond over wellhead?: yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.2 ppm Sustained HNu reading: —
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location: blue mark on NW side
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 53.15' Well Construction Depth: 58.86'
 Well depth info from: Measured w/ weighted Tape
 Standing water volume (.661 gal/ft for 4" well): 3.8 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk
 Comments:

F-17

105.76

WELL CONDITION INVENTORY LOG

Site: WDTI Well ID: GW-24
 Date: 12/17/91 Time: 7:50^{AM} Logger: K Baylor
 Ambient Air Temp (°C): 17°C Weather: hazy, cool
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): OK (Asphalt driveway)
 Ease of locating well (Easy/Difficult): Easy
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK^{MS} Bad (No steel cover)
 Well Head Integrity (Good/OK/Bad): OK PVC Cap
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (Below/Even/Above) _____
 Does it appear that water is ever able to pond over wellhead?: Yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.8 Sustained HNu reading: 0.4
 Is casing marked with water level measuring point (Yes/No): Yes
 _____ If yes, give type/location black mark on casing
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: _____

 Depth to Groundwater: 49.56 Well Construction Depth: 56.8
 Well depth info from: measured w/ weighted tape
 Standing water volume (.661 gal/ft for 4" well): 4.8 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

May be a heavy traffic area (Atlas Steel)

Integrity Appears to

be OK although there

is no steel cap won't fit over PVC cap

F-18

105.83
~~105.68~~

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-22

Date: 12/16/91 Time: 3:29 Logger: K. Raylor

Ambient Air Temp (°C): 27°C Weather: hazy, warm

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): Good ^{southern parking lot} _{at draglog}

Ease of locating well (Easy/Difficult): Difficult

Access Type (Lock, Hex Bolt, etc.): Hex

Well Cover Integrity (Good/OK/Bad): OK

Well Head Integrity (Good/OK/Bad): OK

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear ^{Below 3"} that water is ever able to pond over wellhead?: NO

USGS Survey data on well cover: NO

Initial HNu reading: 2.5 Sustained HNu reading: 2.2

Is casing marked with water level measuring point (Yes/No): No
If yes, give type/location Blue Mark N. side of casing

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: N/A

Depth to Groundwater: 64.54 Well Construction Depth: 77.88

Well depth info from: (solinst) 4" casing weighed tape

Standing water volume (.661 gal/ft for 4" well): 8.8 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

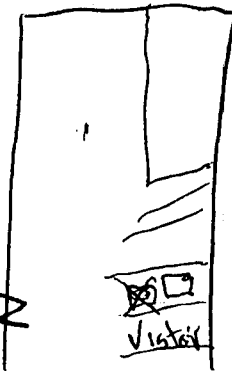
2 access covers
near building.

GW-22 is the one
furthest from the
building

92.15

F-19

< 2



WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-23

Date: 12/14/91 Time: 2:40 Logger: K Bayler

Ambient Air Temp (°C): 28°C Weather: Warm, clear

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): OK parking lot (¹²⁷⁰⁷ Los Nietos)

Ease of locating well (Easy/Difficult): Easy

Access Type (Lock, Hex Bolt, etc.): Hex bolt

Well Cover Integrity (Good/OK/Bad): OK rusted steel

Well Head Integrity (Good/OK/Bad): OK (PVC cap)

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: Yes

USGS Survey data on well cover: None

Initial HNu reading: 0.2 ppm Sustained HNu reading: 0

Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location black smudge on casing

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: —

Depth to Groundwater: 58.58' Well Construction Depth: 63.36'

Well depth info from: Measured using weighted tape

Standing water volume (.661 gal/ft for 4" well): 3.15 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

98.4

F-20

WELL CONDITION INVENTORY LOG

Site: WDT Well ID: GW-24

Date: 12/16/91 Time: 2:40 Logger: K Bayler

Ambient Air Temp (°C): 28°C Weather: warm, clear

Condition of Barriers/type (Good/Bad/None): None (parking lot at 12707 65 N. cross)

Accessibility by vehicle (Good/OK/Bad): OK parking lot

Ease of locating well (Easy/Difficult): Easy (lot at 12707 65 N. cross)

Access Type (Lock, Hex Bolt, etc.): hex bolt

Well Cover Integrity (Good/OK/Bad): OK rusty cap

Well Head Integrity (Good/OK/Bad): OK PVC cap

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: Yes

USGS Survey data on well cover: None

Initial HNu reading: 0 ppm Sustained HNu reading: 0

Is casing marked with water level measuring point (Yes/No): Yes

If yes, give type/location blue mark on W side

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: —

Depth to Groundwater: 64.33 Well Construction Depth: 112.90

Well depth info from: weighted tape

Standing water volume (.661 gal/ft for 4" well): 32.1 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-26
 Date: 12/16/91 Time: 1:49 PM Logger: K Baylor
 Ambient Air Temp (°C): 27°C Weather: clear, warm
 Condition of Barriers/type (Good/Bad/None): None
 Accessibility by vehicle (Good/OK/Bad): OK parking lot (1731 Los Mochos)
 Ease of locating well (Easy/Difficult): Easy
 Access Type (Lock, Hex Bolt, etc.): Hex bolt
 Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
 Well Head Integrity (Good/OK/Bad): OK (PVC cap)
 Well Casing Diameter (2"/4"/other): 4"
 Well Cover location relative to ground level (~~Below~~ Even ~~Above~~): Even
 Does it appear that water is ever able to pond over wellhead?: Yes
 USGS Survey data on well cover: None
 Initial HNu reading: 0.4 Sustained HNu reading: —
 Is casing marked with water level measuring point (Yes/No): Yes
 If yes, give type/location black mark (faded) on W. side
 Downhole Problems (Yes/No): No
 Nature of Problem/Corrective Method: —
 Depth to Groundwater: 50.6' Well Construction Depth: 62.88'
 Well depth info from: measured from weirhead type
 Standing water volume (.661 gal/ft for 4" well): 8.11 gal
 Water Level Indicator used: Solinst
 Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

105.44

F-22

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-27

Date: 12/16/91 Time: 12:43^{PM} Logger: K Baylo

Ambient Air Temp (°C): 25°C Weather: warm, clear

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): OK parking lot ^{12809A LN Road} _(Rick's Smog Service)

Ease of locating well (Easy/Difficult): Easy

Access Type (Lock, Hex Bolt, etc.): hex bolt (1 only)

Well Cover Integrity (Good/OK/Bad): OK rusted steel cover

Well Head Integrity (Good/OK/Bad): OK (PVC cap)

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level (Below/Even/Above)

Does it appear that water is ever able to pond over wellhead?: yes

USGS Survey data on well cover: None

Initial HNu reading: 0.4ppm Sustained HNu reading: —

Is casing marked with water level measuring point (Yes/No): Yes

If yes, give type/location blue mark on N. side

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: —

Depth to Groundwater: 51.70' Well Construction Depth: 63'

Well depth info from: measured w/ weighted tape

Standing water volume (.661 gal/ft for 4" well): 7.5 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

→ only 1 screw in cover
→ ponded water around casing

105.33

F-23

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-28

Date: 12/16/91 Time: 11:00 Logger: K Baylor

Ambient Air Temp (°C): 75°F^{KB} Weather: Clear, warm
25°C

Condition of Barriers/type (Good/Bad/None): None

Accessibility by vehicle (Good/OK/Bad): OK (over dirt and ^{old} foundations)

Ease of locating well (Easy/Difficult): Easy (Not marked on concrete pad)

Access Type (Lock, Hex Bolt, etc.): hex bolt

Well Cover Integrity (Good/OK/Bad): OK (rusty)

Well Head Integrity (Good/OK/Bad): OK

Well Casing Diameter (2"/4"/other): 4"

Well Cover location relative to ground level: (Below/Even) ~~Above~~ ^{KB}

Does it appear that water is ever able to pond over wellhead?: yes, traffic box had standing water

USGS Survey data on well cover: None

Initial HNu reading: 0.5 Sustained HNu reading: 0.5

Is casing marked with water level measuring point (Yes/No): Yes

If yes, give type/location: yes, 3 notches on S. side

Downhole Problems (Yes/No): No

Nature of Problem/Corrective Method: —

Depth to Groundwater: 52.3 Well Construction Depth: 63.52

Well depth info from: measured

Standing water volume (.661 gal/ft for 4" well): 7.4 gal

Water Level Indicator used: Solinst

Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk

Comments:

105.01

F-24

63.52

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-29
Date: 12/14/91 Time: 11:15 Logger: K. Bayler
Ambient Air Temp (°C): 25°C Weather: Clear, warm
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): OK
Ease of locating well (Easy/Difficult): Easy
Access Type (Lock, Hex Bolt, etc.): Hex bolt
Well Cover Integrity (Good/OK/Bad): Bad (rusted steel cap)
Well Head Integrity (Good/OK/Bad): Bad (no PVC cap; cardboard cover)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below Even ~~Above~~) KRS
Does it appear that water is ever able to pond over wellhead?: yes
USGS Survey data on well cover: None
Initial HNu reading: 0.5 Sustained HNu reading: 0.5
Is casing marked with water level measuring point (Yes/No):
If yes, give type/location Blue ink on NW side
Downhole Problems (Yes/No): No.
Nature of Problem/Corrective Method:
52.55 (slur)
Depth to Groundwater: 52.6' Well Construction Depth: 64'
Well depth info from: RI
Standing water volume (.661 gal/ft for 4" well): 7.5 gal
Water Level Indicator used: Powers
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk
Comments:

104.89

F-25

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-30
Date: 12/16/91 Time: 11:20 Logger: K. Baylor
Ambient Air Temp (°C): 25°C Weather: Clear, warm
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): OK
Ease of locating well (Easy/Difficult): Easy (marked on PVC cap, not on concrete pad)
Access Type (Lock, Hex Bolt, etc.): Hex bolt
Well Cover Integrity (Good/OK/Bad): OK rusted
Well Head Integrity (Good/OK/Bad): Bad (no lock, water entry possible)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (Below/Even/Above)
Does it appear that water is ever able to pond over wellhead?: Yes
USGS Survey data on well cover: None
Initial HNu reading: 0.4 ppm Sustained HNu reading: 0.4
Is casing marked with water level measuring point (Yes/No): Yes
If yes, give type/location blue mark on S. side
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: _____
Depth to Groundwater: 52.54 Well Construction Depth: 93.275 ¹⁴⁸
Well depth info from: measured w/ weighted Solinst
Standing water volume (.661 gal/ft for 4" well): 58.7 gal
Water Level Indicator used: Solinst ^{27 gal 13}
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unk
Comments:

WELL CONDITION INVENTORY LOG

Site: WDI Well ID: GW-31
Date: 12/17/91 Time: 9:34^{am} Logger: K Bayler
Ambient Air Temp (°C): 18°C Weather: hazy, cool
Condition of Barriers/type (Good/Bad/None): None
Accessibility by vehicle (Good/OK/Bad): Bad (high grass)
Ease of locating well (Easy/Difficult): Difficult (high grass)
Access Type (Lock, Hex Bolt, etc.): Hex bolt
Well Cover Integrity (Good/OK/Bad): OK (rusty steel cover)
Well Head Integrity (Good/OK/Bad): OK (PVC cap)
Well Casing Diameter (2"/4"/other): 4"
Well Cover location relative to ground level (~~Below~~ Even /Above)
Does it appear that water is ever able to pond over wellhead?: Yes
USGS Survey data on well cover: None
Initial HNu reading: 0.4 Sustained HNu reading: —
Is casing marked with water level measuring point (Yes/No): Yes
— If yes, give type/location blue mark on casing
Downhole Problems (Yes/No): No
Nature of Problem/Corrective Method: —
Depth to Groundwater: 59.82' Well Construction Depth: 63.30'
Well depth info from: Weighted tape
Standing water volume (.661 gal/ft for 4" well): 2.3 gal
Water Level Indicator used: Solinst
Non-Aqueous Phase Liquid (Yes/No/Unknown): Unknown

Comments:

Keyed alike
to well # 31

APPENDIX G
CHAIN OF CUSTODY AND FIELD QA/QC FORMS

Office of Enforcement

REGION 9

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

[illegible]

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 9
75 Hawthorne Street
San Francisco, California 94105-3901

PROJ. NO. CU2527		PROJECT NAME WDI		NO. OF CONTAINERS		REMARKS												
SAMPLERS: (Signature) Kant J. Bayle																		
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION													
	7/13/92	1:00PM	✓		WD920204	8	3	2	2	1								
	7/13/92	3:45PM	✓		WD920209	8	3	2	2	1								
	7/13/92	1:00PM	✓		WD920204D	1												
	7/13/92	3:45PM	✓		WD920209D	1												
	7/12/92	3:45PM	✓		WD920201	1												
	7/12/92	10:35AM	✓		WD920210	1												
	7/12/92	11:45AM	✓		WD920211	1												
	7/12/92	4:30PM	✓		WD920212	1												
	7/12/92	3:45PM	✓		WD920201D	1												
	7/12/92	10:35AM	✓		WD920210D	1												
	7/12/92	11:45AM	✓		WD920211D	1												
	7/12/92	4:30PM	✓		WD920212D	1												
Relinquished by: (Signature) Kant J. Bayle						Date / Time 7/13/92 5:00PM		Received by: (Signature) Fed Ex # 1669174861				Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)						Date / Time		Received by: (Signature)				Relinquished by: (Signature)		Date / Time		Received by: (Signature)		
Relinquished by: (Signature)						Date / Time		Received for Laboratory by: (Signature)				Date / Time		Remarks				

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9 16444

Office of Enforcement

REGION 9

75 Hawthorne Street

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

[illegible]

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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0 15456

651

CHAIN OF CUSTODY RECORD

9 16457

Office of Enforcement

75 Hawthorne Street

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

[illegible]

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A-5

9 16435

C-6

REGION 9
75 Hawthorne Street
San Francisco, California 94105-3901

9 16449

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: 2/18/92 Site: W.D.T.
 Sampler: K. Bayler Case/SAS #: LV2527
 Office: P-3-1 Laboratory: Reg. 9
 Phone #: 4-1490
 Matrix: Groundwater Surface Soil Air
 (check one) Surface Water Subsurface Soil Other

I. BLANKS

Sample #	Type (circle one)	Date Collected
WD920235	Equip / <u>Field</u> / Travel	2/12/92
WD920232	<u>Equip</u> / Field / Travel	2/11/92
WD920233	<u>Equip</u> / Field / Travel	2/13/92
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	
	Equip / Field / Travel	

II. BACKGROUND SAMPLES

Sample #	Date Collected
<u>None</u>	

III. LAB QC SAMPLES

Sample #	Date Collected
WD920226	2/12/92

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected	Type (circle one)	
WD920201	WD920212	2/12/92	<u>a</u> / b / c / d	a = composite split
WD920207	WD920217	2/13/92	<u>a</u> / b / c / d	b = consecutive
			a / b / c / d	c = colocated
			a / b / c / d	d = consecutive
			a / b / c / d	soil sleeves
			a / b / c / d	

V. Checklist of Field Problems Encountered

	Sample # / Date(s) of Occurrence / Comments
<u>None</u>	
<u>Pumping Equipment Problems</u>	
<u>Sample Filtering Problems</u>	
<u>Less Than Required Sample Volume</u>	
<u>Low Flow/Recharge Rates</u>	
<u>Preservation Problem</u>	
<u>Samples Not Shipped in 24hrs.</u>	
<u>Federal Express Delay</u>	
<u>Other</u>	WD920223 / Large bubble in one VOA vial / 2/12/92

Additional Explanation (on the back of the form or attach a page)

Office of Enforcement

REGION 9

75 Hawthorne Street

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

[illegible]

8-8

9 16452



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

18134

Project Code		Account Code		2. Region No. IX		Sampling Co. US EPA		4. Date Shipped 5/14/92		Carrier Federal Express		6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2CR2O7 6. Ice only 7. Other (SAS) (Specify) N. Not preserved		7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)									
Regional Information				Sampler (Name) MARGIE D. WEINER				Airbill Number 1638901132															
Non-Superfund Program				Sampler Signature Margie D. Weiner				5. Ship To AMERICAN ANALYTICAL & TECH. SERVICES 1700 W. ALBANY, SUITE C BROOKEN ARROW, OK 74012 (918) 251-0545 ATTN: MISSY SHERMAN															
Site Name WASTE DISPOSAL, INC.				4. Type of Activity Remedial Removal SF <input checked="" type="checkbox"/> PA <input type="checkbox"/> RIFS <input checked="" type="checkbox"/> CLEM <input type="checkbox"/> PRP <input type="checkbox"/> SS <input type="checkbox"/> RA <input type="checkbox"/> REM <input type="checkbox"/> ST <input type="checkbox"/> SSI <input type="checkbox"/> O&M <input type="checkbox"/> OIL <input type="checkbox"/> FED <input type="checkbox"/> LSI <input type="checkbox"/> NPLD <input type="checkbox"/> UST <input type="checkbox"/>																			
Site State OK		Site Spill ID 9C1		D. Preservative from Box 6		E. RAS Analysis Metals Total Dissolved Cyanide Low Conc. Nitrate/Nitrite Fluoride High pH Conductivity		F. Regional Specific Tracking Number or Tag Numbers		G. Station Location Number		H. Mo/Day/Year/Time Sample Collection		I. Sampler Initials		J. Corresp. CLP Org. Samp. No.		K. Designated Field QC					
CLP Sample Numbers (from Labels)		A. Enter # from Box 7		B. Conc. Low Med High		C. Sample Type: Comp/Grab																	
119		2		L		Grab		2		X				GN-28		WD 920528 MW		05-12-92/11:40		MDW		YK982	
120		2		L		Grab		2		X				GN-28		WD 920528 MW		05-12-92/11:40		MDW			
129		2		L		Grab		2		X				GN-32		WD 920532 MW		05-12-92/11:50		MDW		YK987	
130		2		L		Grab		2		X				GN-32		WD 920532 MW		05-12-92/11:50		MDW		EQUIP. BLANK	
115		2		L		Grab		2		X				GN-23				05-12-92/17:00		MDW		YK980	
116		2		L		Grab		2		X				GN-23				05-12-92/17:20		MDW			
117		2		L		Grab		2		X				GN-24				05-12-92/18:10		MDW		YK981	
118		2		L		Grab		2		X				GN-24				05-12-92/18:30		MDW			
111		2		L		Grab		2		X				GN-10				05-13-92/11:15		MDW		YK978	
112		2		L		Grab		2		X				GN-10				05-13-92/11:20		MDW			
Shipment for Case complete? (Y/N)				Page 1 of 4				Sample used for a spike and/or duplicate				Additional Sampler Signatures				Chain of Custody Seal Number							

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) M. D. Weiner	Date / Time 5/14/92 9:30	Received by: (Signature) Fed Ex 1638901132	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION:

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Split Samples ☐ Accepted (Signature)

☐ Declined



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

18134

Project Code:	Account Code	2. Region No. 9	Sampling Co. EPA	4. Date Shipped 5/14/92	Carrier Fed Ex	6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2CR2O7 6. Ice only 7. Other (SAS) (Specify) N. Not preserved	7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)					
Regional Information		Sampler (Name) Katherine J. Baylor		Airbill Number 1638901132								
Non-Superfund Program		Sampler Signature Katherine J. Baylor		5. Ship To American Analytical 1720 W. Albany, Ste C Broken Arrow, OK 74012								
Site Name Waste Disposal, Inc		4. Type of Activity Remedial SF <input checked="" type="checkbox"/> PA <input type="checkbox"/> RA <input type="checkbox"/> RIFS <input checked="" type="checkbox"/> CLEM <input type="checkbox"/> ST <input type="checkbox"/> SSI <input type="checkbox"/> O&M <input type="checkbox"/> REM <input type="checkbox"/> FED <input type="checkbox"/> LSI <input type="checkbox"/> NPLD <input type="checkbox"/> UST <input type="checkbox"/>										
City/State Safford Springs, AZ	Site Spill ID C1											
CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E - RAS Analysis Metals Total Dissolved Cyanide Nitrate/Nitrite Fluoride pH Conductivity Low Conc. High		F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Designated Field QC
MYJ107	2	L	G	2	X			GW-07	5/12/92 15:10		YK976	
MYJ108	2	L	G	2	X			GW-07	5/12/92 15:10			
MYJ125	2	L	G	2	X			GW-12	5/12/92 18:30		YK985	Dupe of MYJ104
MYJ126	2	L	G	2	X			GW-12	5/12/92 18:30			Dupe of MYJ102
MYJ127	2	L	G	2	X			GW-17	5/12/92 16:30		YK986	Dupe of MYJ107
MYJ128	2	L	G	2	X			GW-17	5/12/92 16:30			Dupe of MYJ108
MYJ121	2	L	G	2	X			lab QC	5/12/92 13:00		YK983	
MYJ122	2	L	G	2	X			lab QC	5/12/92 13:00			
MYJ131	2	L	G	2	X			GW-33	5/13/92 9:10		YK988	Blank
MYJ132	2	L	G	2	X			GW-33	5/13/92 9:10			Blank
Shipment for Case complete? (Y/N)		Page 1 of 4		Sample used for a spike and/or duplicate MYJ121 - Double Volume MYJ122 - LAB QC		Additional Sampler Signatures		Chain of Custody Seal Number				

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) Katherine J. Baylor	Date / Time 5/14/92 11:00 AM	Received by: (Signature) Fed EX	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

DISTRIBUTION:

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Split Samples ☐ Accepted (Signature)

☐ Declined

1 000572



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

18134

Project Code:	Account Code	2. Region No. 9	Sampling Co. EPA	4. Date Shipped 5/14/92	Carrier Fed Ex	6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2CR2O7 6. Ice only 7. Other (SAS) (Specify) N. Not preserved	7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)
Regional Information		Sampler (Name) Katherine J. Baylor		Airbill Number 1638901132			
Non-Superfund Program		Sampler Signature Katherine J. Baylor		5. Ship To American Analytical 1700 W. Albany, Ste C Broken Arrow, OK 74012			
Site Name Waste Disposal, Inc		4. Type of Activity SF <input checked="" type="checkbox"/> Remedial PRP <input type="checkbox"/> PA <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>					
City, State Springer, OK		Site Spill ID C1					

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp / Grab	D Preservative from Box 6	E - RAS Analysis							F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Designated Field QC
					Metals		Cyanide	Low Conc.		High							
					Total	Dissolved		Nitrate/Nitrite	Fluoride	pH	Conductivity						
MSJ 113	2	L	G	2	X							GW-11	5/13/92 13:30	MDW	YK979		
MSJ 114	2	L	G	2	X							GW-11	5/13/92 13:30	MDW			
MSJ 123	2	L	G	2	X							GW-30	5/13/92 17:10	MDW	YK984		
MSJ 124	2	L	G	2	X							GW-30	5/13/92 17:10	MDW			
MSJ 101	2	L	G	2	X							GW-01	5/12/92 17:22	KB	YK973		
MSJ 102	2	L	G	2	X							GW-01	5/12/92 17:22	KB			
MSJ 103	2	L	G	2	X							GW-02	5/13/92 11:25	KB	YK974		
MSJ 104	2	L	G	2	X							GW-02	5/13/92 11:25	KB			
MSJ 105	2	L	G	2	X							GW-04	5/13/92 17:30	KB	YK975		
MSJ 106	2	L	G	2	X							GW-04	5/13/92 17:30	KB			
Shipment for Case complete? (Y/N)		Page 1 of 4		Sample used for a spike and/or duplicate		Additional Sampler Signatures						Chain of Custody Seal Number					

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) Katherine J. Baylor	Date / Time 5/14/92 11:00am	Received by: (Signature) Fed Ex	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-1 (Rev. 5-91) Replaces EPA Form (2075-6), previous edition which may be used

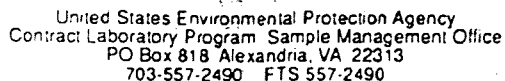
DISTRIBUTION:

Green - Region Copy Pink - SMO Copy White - Lab Copy Yellow - Lab Copy for Return to SMO

Split Samples ☐ Accepted (Signature)

☐ Declined

1000-1



(For Inorganic CLP Analysis)

Case No.

18134

Project Code		Account Code		2. Region No.		3. Sampling Co.		4. Date Shipped		Carrier		6. Preservative (Enter in Column D)		7. Sample Description (Enter in Column A)											
				9		EPA		5/14/92		Fed Ex		1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2Cr2O7 6. Ice only 7. Other (SAS) (Specify)		1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)											
Regional Information				Sampler (Name)				Airbill Number				5. Ship To													
				Katherine J. Baylor				1638901132																	
Non-Superfund Program				Sampler Signature				America Analytical 1700 W. Albany, Ste C Broken Arrow, OK 74012				N. Not preserved													
				Katherine J. Baylor																					
Site Name				4. Type of Activity				Remedial Removal																	
Waste Diesel, Inc.				<input checked="" type="checkbox"/> Lead <input checked="" type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST																					
City/State				Site Spill ID																					
Spartan Springs, CA				PRP ST FED																					
G.P. Sample Numbers (from labels)		A Enter # from Box 7		B Conc. Low Med High		C Sample Type: Comp./Grab		D Preservative from Box 6		E - RAS Analysis				F Regional Specific Tracking Number or Tag Numbers		G Station Location Number		H Mo/Day/Year/Time Sample Collection		I Sampler Initials		J Corresp. CLP Org. Samp. No.		K Designated Field QC	
MSD 33		2		L		G		2		<input checked="" type="checkbox"/> Total <input checked="" type="checkbox"/> Dissolved <input checked="" type="checkbox"/> Cyanide <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Fluoride <input type="checkbox"/> pH <input type="checkbox"/> Conductivity						GW-34		5/13/92 16:40		KB		YK989		Blank	
MSD 34		2		L		G		2		<input checked="" type="checkbox"/> Total <input checked="" type="checkbox"/> Dissolved <input checked="" type="checkbox"/> Cyanide <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Fluoride <input type="checkbox"/> pH <input type="checkbox"/> Conductivity						GW-34		5/13/92 16:40		KB		YK989		Blank	

Relinquished by: (Signature) <i>J. Bayle</i>	Date / Time 5/14/02 11:00	Received by: (Signature) <i>Paul Ex</i> 1638901132	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)

☐ Declined

DISTRIBUTION:

Green - Region Copy Pink - SMO Copy White - Lab Copy Yellow - Lab Copy for Return to SMO

1 020572



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

18134

1. Project Code		Account Code		2. Region No.		Sampling Co.		4. Date Shipped		Carrier		6. Preservative (Enter in Column D) 1. HCl 2. HNO ₃ 3. NaHSO ₄ 4. H ₂ SO ₄ 5. Other (Specify) 6. Ice only N. Not preserved		7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)									
Regional Information		Sampler (Name)		Airbill Number																			
Non-Superfund Program		Sampler Signature		5. Ship To																			
Site Name		3. Type of Activity		Remedial		Removal		IT ANALYTICAL SERVICES		17605 Fabrica Way													
City, State		Site Spill ID		SF <input checked="" type="checkbox"/> PA <input type="checkbox"/> ST <input type="checkbox"/> FED <input type="checkbox"/>		Lead <input checked="" type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>		(213) 921-9831		ATTN: CHERYL FERGUSON													
CLP Sample Numbers (from labels)		A Enter # from Box 7		B Conc. Low Med High		C Sample Type: Comp/Grab		D Preservative from Box 6		E RAS Analysis		F Regional Specific Tracking Number or Tag Numbers		G Station Location Number		H Mo/Day/Year/Time Sample Collection		I Sampler Initials		J Corresp. CLP Inorg. Samp. No.		K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. - = Not a QC Sample	
YK982		2		L		Grab		1/6		X X X		GW-28		WD920528		5-12-92/11:40		MDW		MYJ119			
YK987		2		L		Grab		1/6		X X X		GW-32		WD920532		5-12-92/11:50		MDW		MYJ129		EQUIP. BLANK	
YK980		2		L		Grab		1/6		X X X		GW-23				5-12-92/17:00		MDW		MYJ115			
YK981		2		L		Grab		1/6		X X X		GW-24				5-12-92/18:10		MDW		MYJ117			
Shipment for Case complete? (Y/N)		Page 1 of		Sample used for a spike and/or duplicate		Additional Sampler Signatures		Chain of Custody Seal Number															

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
M. J. Weiner	5/13/92 10:00				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

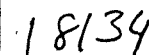
EPA Form 9110-2 (Rev. 5-91) Replaces EPA Form (2075-7), previous edition which may be used

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Split Samples ☐ Accepted (Signature)
☐ Declined

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS



Carrier
Fed Ex

Airbill Number

5. Ship To	
------------	--

Remedial Removal

SF	<input checked="" type="checkbox"/>	Remedial	PA	<input type="checkbox"/>	RIFS	<input checked="" type="checkbox"/>	CLEM	<input type="checkbox"/>
PRP	<input type="checkbox"/>		SS	<input type="checkbox"/>	RD	<input type="checkbox"/>	REMA	<input type="checkbox"/>
ST	<input type="checkbox"/>		LSI	<input type="checkbox"/>	RA	<input type="checkbox"/>	REM	<input type="checkbox"/>
FED	<input type="checkbox"/>				O&M	<input type="checkbox"/>	OIL	<input type="checkbox"/>
					NPI	<input type="checkbox"/>	UST	<input type="checkbox"/>

ATTN: Cheryl Ferguson

1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other

(Specify)

VOA	BNA	Pest/ PCB	High only ARO/ TOX
-----	-----	--------------	-----------------------------

H
Mo/Day/
Year/Time
Sample
Collection

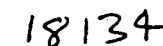
J
-Corresp.
CLP. Inorg.
Samp. No.

	K
	Enter Appropriate Qualifier for Designated Field OC:

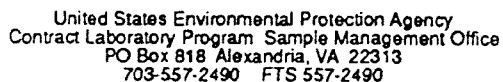
B = Blank S = Spike
D = Duplicate
PE = Perform. Eval.
— = Not a QC Sample

Chain of Custody Seal Number

Split Samples ☐ Accepted (Signature)
☐ Declined



1



SAS No. (if applicable)	
----------------------------	--

Case No.

18134

[illegible]

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) <i>Kan J. Bayler</i>	Date / Time 5/14/92 11:20 AM	Received by: (Signature) <i>Fed Ex</i> 1638901143	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)
☐ Declined

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: 15 May '92 Site: WDI
 Sampler: K. Bayler Case/SAS #: 18134
 Office: P-3-1 Laboratory: IT Analytical Services
 Phone #: 744-1490
 Matrix: ☒ Groundwater ☐ Surface Soil ☐ Air
 (check one) ☐ Surface Water ☐ Subsurface Soil ☐ Other _____

I. BLANKS

Sample #	Type (circle one)	Date Collected
<u>YK 987</u>	<u>Equip</u> / Field / Travel	<u>5/12/92</u>
<u>YK 988</u>	<u>Equip</u> / Field / Travel	<u>5/13/92</u>
<u>YK 989</u>	Equip / <u>Field</u> / Travel	<u>5/13/92</u>
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____

II. BACKGROUND SAMPLES

Sample #	Date Collected
<u>None</u>	_____
_____	_____
_____	_____
_____	_____

III. LAB QC SAMPLES

Sample #	Date Collected
<u>YK 983</u>	<u>5/12/92</u>
_____	_____
_____	_____
_____	_____
_____	_____

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected	Type (circle one)	
<u>YK 976</u>	<u>YK 986</u>	<u>5/13/92</u>	a / <u>b</u> / c / d	a = composite split
<u>YK 973</u>	<u>YK 985</u>	<u>5/12/92</u>	a / <u>b</u> / c / d	b = consecutive
_____	_____	_____	a / b / c / d	c = colocated
_____	_____	_____	a / b / c / d	d = consecutive
_____	_____	_____	a / b / c / d	soil sleeves
_____	_____	_____	a / b / c / d	

V. Checklist of Field Problems Encountered

☒ None Sample # / Date(s) of Occurrence / Comments

☐ Pumping Equipment Problems _____

☐ Sample Filtering Problems _____

☐ Less Than Required Sample Volume _____

☐ Low Flow/Recharge Rates _____

☐ Preservation Problem _____

☐ Samples Not Shipped in 24hrs. _____

☐ Federal Express Delay _____

☐ Other _____

Additional Explanation (on the back of the form or attach a page)

G-17

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: 15 May '92 Site: WDI
 Sampler: K. Baylor Case/SAS #: 18134
 Office: P-3-1 Laboratory: American Analytical
 Phone #: 4-1490
 Matrix: ☒ Groundwater ☐ Surface Soil ☐ Air
 (check one) ☐ Surface Water ☐ Subsurface Soil ☐ Other _____

I. BLANKS

Sample #	Type (circle one)	Date Collected
<u>MYJ129</u>	<u>Equip</u> / Field / Travel	<u>5/12/92</u>
<u>MYJ130</u>	<u>Equip</u> / Field / Travel	<u>5/12/92</u>
<u>MYJ131</u>	<u>Equip</u> / Field / Travel	<u>5/13/92</u>
<u>MYJ132</u>	<u>Equip</u> / Field / Travel	<u>5/13/92</u>
<u>MYJ133</u>	Equip / <u>Field</u> / Travel	<u>5/13/92</u>
<u>MYJ134</u>	Equip / <u>Field</u> / Travel	<u>5/13/92</u>
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____

II. BACKGROUND SAMPLES

Sample #	Date Collected
<u>None</u>	_____
_____	_____
_____	_____
_____	_____

III. LAB QC SAMPLES

Sample #	Date Collected
<u>MYJ121</u>	<u>5/12/92</u>
<u>MYJ122</u>	<u>5/12/92</u>
_____	_____
_____	_____
_____	_____
_____	_____

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected	Type (circle one)	
<u>MYJ101</u>	<u>MYJ125</u>	<u>5/12/92</u>	a / <u>b</u> / c / d	a = composite split
<u>MYJ102</u>	<u>MYJ126</u>	<u>5/12/92</u>	a / <u>b</u> / c / d	b = consecutive
<u>MYJ107</u>	<u>MYJ127</u>	<u>5/13/92</u>	a / <u>b</u> / c / d	c = colocated
<u>MYJ108</u>	<u>MYJ128</u>	<u>5/13/92</u>	a / <u>b</u> / c / d	d = consecutive
_____	_____	_____	a / b / c / d	soil sleeves
_____	_____	_____	a / b / c / d	


V. Checklist of Field Problems Encountered

☒ None

Sample # / Date(s) of Occurrence / Comments

Additional Explanation (on the back of the form or attach a page)

E-19

		United States Environmental Protection Agency Contract Laboratory Program Sample Management Office PO Box 818 Alexandria, VA 22313 703-557-2490 FTS 557-2490				Organic Traffic Report & Chain of Custody Record (For Organic CLP Analysis)		SAS No. (if applicable)		Case No. 18134				
1. Project Code		Account Code		2. Region No. 9		Sampling Co. EPA		4. Date Shipped 5/13/92		Carrier Fed Ex				
Regional Information				3. Sampler (Name) Katherine J. Baylor				Airbill Number 1638901165						
Non-Superfund Program				3. Sampler Signature Katherine J. Baylor				5. Ship To IT Analytical Services						
Site Name Waste Disposal, Inc.				3. Type of Activity				6. Preservative (Enter in Column D)						
City, State Santa Fe Springs, CA				Remedial <input checked="" type="checkbox"/> SF <input type="checkbox"/> PA <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/> PRP <input type="checkbox"/> ST <input type="checkbox"/> FED				Removal <input checked="" type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST						
Site Spill ID C1				ATTN: Cheryl Ferguson				1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Other (Specify) 6. Ice only N. Not preserved						
CLP Sample Numbers (from labels)		A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/Grab	D Preservative from Box 6	E RAS Analysis		F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC	
						VOA	BNA	Pest/PCB					B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample	
YK973		2	L	Grab	1/6	X	X	X		GW-01	5/12/92	KB	MYJ101	—
YK985		2	L	Grab	1/6	X	X	X		GW-12	5/12/92	KB	MYJ125	Dupe of GW-01
YK983		2	L	Grab	1/6	X	X	X	Double Volume Lab QC	GW-26	5/12/92	KB	MYJ121	—
Shipment for Case complete? (Y/N)		Page 1 of 1		Sample Used for a spike and/or duplicate YK983 - Double Volume Lab QC				Additional Sampler Signatures		Chain of Custody Seal Number				

Relinquished by: (Signature) Katherine J. Baylor		Date / Time 5/13/92 10:00 AM		Received by: (Signature) Fed Ex. #		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks		Is custody seal intact? Y/N/none	



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

18609

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier	6. Preservative (Enter in Column D) 1. HCl 2. HNO ₃ 3. NaHSO ₄ 4. H ₂ SO ₄ 5. Other (Specify) 6. Ice only N. Not preserved	7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)
Regional Information		Sampler (Name) K. Bayler		Airbill Number 2519612222			
Non-Superfund Program		Sampler Signature <i>K. Bayler</i>		5. Ship To Pacific Analytical 6349 Paseo Del Lago, Suite 102 Carlsbad, CA 92009 ATTN: Stacy Mourakos			
Site Name Waste Disposal, Inc.		3. Type of Activity Lead Pre Remedial RIFS CLEM SF <input checked="" type="checkbox"/> Remedial RD <input checked="" type="checkbox"/> REMA PRP <input checked="" type="checkbox"/> PA <input type="checkbox"/> RA <input type="checkbox"/> REM ST <input type="checkbox"/> SSI <input type="checkbox"/> O&M <input type="checkbox"/> OIL FED <input type="checkbox"/> LSI <input type="checkbox"/> NPLD <input type="checkbox"/> UST <input type="checkbox"/>					
City, State Santa Fe Springs, CA		Site Spill ID C1					

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/ Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
					VOA	BNA	Pest/ PCB	High only ARO/ TOX						
YL333	2	L	G	1	✓					GW-23	8/12/92	KB	MYJ615	
YL334	2	L	G	1	✓					GW-24	"	KB	MYJ617	
YL337	2	L	G	1	✓					GW-30	"	KB	MYJ623	
YL341	2	L	G	1	✓					GW-33	8/13/92	KB	MYJ631	BLANK
YL327	2	L	G	1	✓				(2 bottles only)	GW-02	8/12/92	KB	MYJ604	
YL328	2	L	G	1	✓					GW-04	"	KB	MYJ606	605
YL331	2	L	G	1	✓					GW-10	"	KB	MYJ611	
YL332	2	L	G	1	✓					GW-11	"	KB	MYJ613	

Shipment for Case complete? (Y/N)	Page 1 of 1	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
-----------------------------------	-------------	--	-------------------------------	------------------------------

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) <i>K. Bayler</i>	Date / Time 9/13/92 2:00PM	Received by: (Signature) <i>Fed Ex</i>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-2 (Rev. 5-91) Replaces EPA Form (2075-7), previous edition which may be used

DISTRIBUTION:

Blue - Region Copy Pink - SMO Copy White - Lab Copy for Return to Region Yellow - Lab Copy for Return to SMO

Split Samples ☐ Accepted (Signature)
☐ Declined

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS

0339235

1. Project Code		Account Code		2. Region No.		Sampling Co.		4. Date Shipped		Carrier		6. Preservative (Enter in Column D)		7. Sample Description (Enter in Column A)	
				9		EPA		9/12/92		Fed Ex					
Regional Information				Sample Name				Airbill Number							
				KJ Baylon				2519612255							
Non-Superfund Program				Sampler Signature				5. Ship To							
				O. Katherine J. Baylon				Pacific Analytical 6349 Paseo Del Lago Carlsbad, CA 92009							
Site Name				3. Type of Activity											
Waste Disposal Inc.				Remedial Removal											
City, State				SF PRP ST FED											
Santa Fe Springs, CA				Lead Pre-Remedial RIFS RD RA O&M NPLD											
Site Spill ID				CLEM REMA REM OIL UST											
CA C1								ATTN: Stacy Mourakos							
CLP Sample Numbers (from labels)		A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC
						VOA	BNA	Pest/PCB	High only ARO/TOX						
YL326	2	L	G	1	✓						GW-01	9/11/92 3:45 PM	MB	MYJ602	
YL329	2	L	G	1	✓						GW-07	9/12/92 7:50 AM	MB	MYJ607	
YH35	2	L	G	1	✓						GW-28	9/11/92 11:55 AM	MB	MYJ619	
YL338	2	L	G	1	✓						GW-12	9/11/92 2:30 PM	MB	MYJ625	Dupe of YL326
YL339	2	L	G	1	✓						GW-17	9/12/92 9:50 AM	MB	MYJ627	Dupe of YL329
YL340	2	L	G	1	✓						GW-39	9/11/92 10:00 AM	MB	MYJ629	BLANK
YL336	2	L	G	1	✓						GW-26	9/11/92 1:50 PM	MB	MYJ621	Double Volume LAB OK
Shipment for Case complete? (Y/N) Page 1 of Sample used for a spike and/or duplicate Additional Sampler Signatures Chain of Custody Seal Number															
YL336 Double Volume LAB OK															

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 8/12/12 4:00 PM	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)
☐ Declined

ENVIRONMENTAL PROTECTION AGENCY

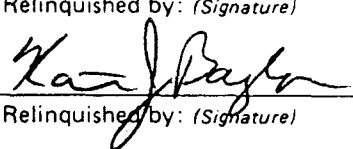
Office of Enforcement

REGION 9

75 Hawthorne Street

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS																	
SAMPLERS: (Signature)																							
STA. NO.	DATE	TIME	COMP. GPC													STATION LOCATION							
LV2561	Waste Disposal, Inc					<div style="transform: rotate(-45deg); display: inline-block;"> RAS BNAS RAS Pct/PLBS RAS Metals </div>																	
GW-02	8/12/92	10:05AM	✓	YL 327	4											2	2						
GW-24	8/12/92	2:40PM	✓	YL 334	4											2	2						
GW-30	8/12/92	5:00PM	✓	YL 337	4											2	2						
GW-02	8/12/92	10:05AM	✓	MYJ 604	1													1					
GW-02	8/12/92	10:05AM	✓	MYJ 635	1													1					
GW-24	8/12/92	2:40PM	✓	MYJ 617	1													1					
GW-24	8/12/92	2:40PM	✓	MYJ 618	1													1					
GW-30	8/12/92	5:00PM	✓	MYJ 623	1													1					
GW-30	8/12/92	5:00PM	✓	MYJ 624	1													1					
Relinquished by: (Signature)					Date / Time	Received by: (Signature)					Date / Time	Received by: (Signature)											
					8/13/92 1:00PM	Fed Ex # 2519612200																	
Relinquished by: (Signature)					Date / Time	Received by: (Signature)					Date / Time	Received by: (Signature)											
Relinquished by: (Signature)					Date / Time	Received for Laboratory by: (Signature)					Date / Time	Remarks											

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9 16448

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS														
SAMPLERS: (Signature)																				
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION															
AW-12	9/1/92	3:20 PM	✓		YL 338	4	2	2												
SW-28	9/1/92	10:55 AM	✓		YL 335	4	2	2												
SW-32	9/1/92	10:00 AM	✓		YL 340	4	2	2												
SW-12	9/1/92	3:20 PM	✓		MYJ 625	1														
SW-12	9/1/92	3:20 PM	✓		MYJ 626	1														
SW-28	9/1/92	11:55 AM	✓		MYJ 619	1														
SW-28	9/1/92	11:55 AM	✓		MYJ 620	1														
SW-32	9/1/92	10:00 AM	✓		MYJ 629	1														
SW-32	9/1/92	10:00 AM	✓		MYJ 630	1														
Relinquished by: (Signature)						Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)						
Karl J. Bayler						9/12/92 2:00 PM		Fed Ex # 2519612185												
Relinquished by: (Signature)						Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)						
Relinquished by: (Signature)						Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks								

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CON- TAINERS									REMARKS
LV2SG1		WDI											
SAMPLERS: (Signature)													
STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION								
GW-01	8/12/92	0809		✓	YL329	4	2	2					
"	"	0820		✓	MYJ607	1			1				
"	"	0821		✓	MYJ608	1			1				
GW-17	8/12/92	0823		✓	YL339	4	2	2					
"	"	0835		✓	MYJ627	1			1				
"	"	0837		✓	MYJ628	1			1				
GW-23	8/12/92	1410		✓	YL333	4	2	2					
"	"	1410		✓	MXJ615	1			1				
"	"	1410		✓	MXJ616	1			1				
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Ker J. Bayle		8/12/92 5:30PM		Fed Ex #2519612244									
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)			
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks					

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

[illegible]

9 16434

ENVIRONMENTAL PROTECTION AGENCY

Office of Enforcement

REGION 9

75 Hawthorne Street
San Francisco, California 94105

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS													
SAMPLERS: (Signature)																			
STA. NO.	DATE	TIME	COMP													GRAB	STATION LOCATION		
W2561	Waste Disposal, Inc.																		
Karl J. Bayler																			
GL-04	8/13/92	9:55AM	✓		YL 328	4	2	2											
GL-10	8/13/92	8:20AM	✓		YL 331	4	2	2											
GL-33	8/13/92	9:00AM	✓		YL 341	4	2	2											
GL-04	8/13/92	9:55AM	✓		MYJ605	1			1										
GL-04	8/13/92	9:55AM	✓		MYJ606	1			1										
GL-10	8/13/92	8:00AM	✓		MYJ611	1			1										
GL-10	8/13/92	8:00AM	✓		MYJ612	1			1										
GL-33	8/13/92	9:00AM	✓		MYJ631	1			1										
GL-33	8/13/92	9:00AM	✓		MYJ632	1			1										
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)									
Karl J. Bayler		8/13/92 2:00PM		Fed Ex # 2519612211															
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)									
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks											

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

0 17216

Office of Enforcement

REGION 9

San Francisco, California 94105-3901

CHAIN OF CUSTODY RECORD

[illegible]

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

C 16440

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: 8/17/92 Site: WDT
 Sampler: Baylor Case/SAS #: LV2561
 Office: D-3-1 Laboratory: Reg. 9
 Phone #: 4-1490

Matrix: ☒ Groundwater ☐ Surface Soil ☐ Air
 (check one) ☐ Surface Water ☐ Subsurface Soil ☐ Other _____

I. BLANKS

Sample #	Type (circle one)	Date Collected
<u>YL340</u>	<u>Equip</u> / Field / Travel	<u>8/11/92</u>
<u>YL341</u>	<u>Equip</u> / Field / Travel	<u>8/13/92</u>
<u>MYJ631</u>	<u>Equip</u> / Field / Travel	<u>8/13/92</u>
<u>MYJ632</u>	<u>Equip</u> / Field / Travel	<u>8/13/92</u>
<u>MYJ629</u>	<u>Equip</u> / Field / Travel	<u>8/11/92</u>
<u>MYJ630</u>	<u>Equip</u> / Field / Travel	<u>8/11/92</u>
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____

II. BACKGROUND SAMPLES

Sample #	Date Collected
<u>None</u>	_____
_____	_____
_____	_____
_____	_____

III. LAB QC SAMPLES

Sample #	Date Collected
<u>YL336</u>	<u>8/11/92</u>
<u>MYJ621</u>	<u>8/11/92</u>
<u>MYJ622</u>	<u>8/11/92</u>
_____	_____
_____	_____

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected	Type (circle one)	
<u>YL338</u>	<u>YL326</u>	<u>8/11/92</u>	a <u>(b)</u> c / d	a = composite split
<u>YL339</u>	<u>YL329</u>	<u>8/12/92</u>	a <u>(b)</u> c / d	b = consecutive
<u>MYJ602</u>	<u>MYJ625</u>	<u>8/11/92</u>	a <u>(b)</u> c / d	c = colocated
<u>MYJ603</u>	<u>MYJ626</u>	<u>8/11/92</u>	a <u>(b)</u> c / d	d = consecutive
<u>MYJ607</u>	<u>MYJ627</u>	<u>8/12/92</u>	a <u>(b)</u> c / d	soil sleeves
<u>MYJ608</u>	<u>MYJ628</u>	<u>8/12/92</u>	a <u>(b)</u> c / d	

V. Checklist of Field Problems Encountered

	Sample # / Date(s) of Occurrence / Comments
<input type="checkbox"/> None	
<input type="checkbox"/> Pumping Equipment Problems	
<input type="checkbox"/> Sample Filtering Problems	
<input checked="" type="checkbox"/> Less Than Required Sample Volume	<u>YL341</u> <u>Rest/PLB</u> <u>Less Volume</u> // <u>YL336</u> <u>BNAS</u> <u>3 liters for lab QC</u>
<input type="checkbox"/> Low Flow/Recharge Rates	
<input type="checkbox"/> Preservation Problem	
<input type="checkbox"/> Samples Not Shipped in 24hrs.	
<input type="checkbox"/> Federal Express Delay	
<input type="checkbox"/> Other	

Additional Explanation (on the back of the form or attach a page)

C-29

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: 8/17/92 Site: WDT
 Sampler: Baylor Case/SAS #: 18609
 Office: P-3-1 Laboratory: Pacific Analytical Labs
 Phone #: 744-1490
 Matrix: ☒ Groundwater ☐ Surface Soil ☐ Air
 (check one) ☐ Surface Water ☐ Subsurface Soil ☐ Other _____

I. BLANKS

Sample #	Type (circle one)	Date Collected
<u>YL340</u>	<u>Equip</u> / Field / Travel	<u>8/11/92</u>
<u>YL341</u>	<u>Equip</u> / Field / Travel	<u>8/13/92</u>
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____

II. BACKGROUND SAMPLES

Sample #	Date Collected
<u>None</u>	_____
_____	_____
_____	_____
_____	_____

III. LAB QC SAMPLES

Sample #	Date Collected
<u>YL336</u>	<u>8/11/92</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected	Type (circle one)	
<u>YL338</u>	<u>YL326</u>	<u>8/11/92</u>	a <u>(b)</u> c / d	a = composite split
<u>YL339</u>	<u>YL329</u>	<u>8/12/92</u>	a <u>(b)</u> c / d	b = consecutive
_____	_____	_____	a / b / c / d	c = colocated
_____	_____	_____	a / b / c / d	d = consecutive
_____	_____	_____	a / b / c / d	soil sleeves
_____	_____	_____	a / b / c / d	

V. Checklist of Field Problems Encountered

	Sample # / Date(s) of Occurrence / Comments
<input checked="" type="checkbox"/> None	
<input type="checkbox"/> Pumping Equipment Problems	_____
<input type="checkbox"/> Sample Filtering Problems	_____
<input type="checkbox"/> Less Than Required Sample Volume	_____
<input type="checkbox"/> Low Flow/Recharge Rates	_____
<input type="checkbox"/> Preservation Problem	_____
<input type="checkbox"/> Samples Not Shipped in 24hrs.	_____
<input type="checkbox"/> Federal Express Delay	_____
<input type="checkbox"/> Other	_____

Additional Explanation (on the back of the form or attach a page)

G-30

APPENDIX H
HEALTH AND SAFETY PLAN

APPENDIX A

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 9
OFFICE OF POLICY AND MANAGEMENT
HEALTH AND SAFETY OFFICE

SITE SAFETY PLAN
FOR
HAZARDOUS SUBSTANCES RESPONSE AND FIELD INVESTIGATIONS

I. DESCRIPTION OF FIELD ACTIVITY:

Site: Waste Disposal, Inc. Site Phone: none

Location: Los Angeles, CA Superfund : Yes X No

SSP Prepared By: K. Baylor Mail Code (P-3-1) Phone 4-1490

Proposed Date of Response/Investigation: February 10-14, 1992

Purpose/Objective: Quarterly groundwater sampling scheduled to start February 92. The objective of this quarterly monitoring is to support Record of Decision due in April, 1993 to determine future action at the site.

Background Review: Complete X Preliminary

Background Material Attached: Yes X No

Indicate which of the following information source(s) were consulted: State and/or Local Agency, State and/or Federal OSHA, NIOSH, EPA files, Site Operator and Local Fire Department. EPA files (Remedial Investigation)

Overall Hazard Summary: Low X High

Medium Unknown

Route of Exposure: Inhalation X Skin Contact X Ingestion

Map or Sketch Attached: Yes X No

II. SITE CHARACTERISTICS:

A. Facility Description: Waste Disposal, Inc. is a closed landfill containing a 1,000,000 barrel capacity concrete-lined reservoir. Over a period of 40 years, various oil-field and industrial wastes were disposed in and near the reservoir, in lined and unlined waste handling areas.

B. Hazardous Substance(s) Description: Previous groundwater sampling at the site has shown low levels of organics and metals, with most contaminants below or near the drinking water Maximum Contaminant Limits (MCLs).

C. Disposal/Storage Methods: Historically, purge water from monitoring wells has been disposed of on the ground or to the storm drain.

D. Status: Active _____ Inactive X Unknown _____

E. History: (Include accidents or injuries on-site, complaints from public, previous releases and agency reports): Numerous releases and illegal discharges in 1950's and 1960's. Facility closed and covered with clean fill in 1966.

F. Is personal protective equipment required by Facility/Site Management? List equipment and specific areas where required: Unknown. Several of the wells are located on RCRA-regulated facilities, which may require hardhats and safety boots.

G. Are employees working at the facility/site monitored for exposure to airborne contaminants? If so, describe situation: Unknown

H. Do employees working at the facility/site participate in an occupational medical monitoring program? If so, are special biological tests performed or Biologic Limit Values (BLVs) used? Unknown

I. Describe medical monitoring procedures for evidence of personnel exposure: Unknown

J. Is there an on-site emergency alarm system? If so, describe alarm: None

K. Is there an eyewash/safety shower available on site? If not, explain alternate procedures (where applicable): Unknown. A portable eyewash will be brought into the field.

Hazard Assessment¹ (Toxic effects, TLV, odor threshold, reactivity, stability, flammability, and operational hazards with sampling, decontamination, etc.): Low hazard. Previous sampling indicates low concentrations of volatile organic constituents and metals.

Note 1: Attach copy of Hazardous Substance Information Form (Appendix C), Material Safety Data Sheet (MSDS), OHMTADS, Hazardline printouts, etc..

1/89

Note 3: Subjective evaluation (e.g., low, moderate, high, unknown or not applicable).

IV. WORK PLAN INSTRUCTIONS:

Hazardous Substance Sampling and Field Investigations

A. Level of Protection: A B C X D X

Modifications: HNu will be used to check wells. APRs will be used if HNu reading is greater than 1 ppm after venting 5 minutes. Only two wells have previously shown HNu readings higher than 1ppm; of these, only GW-10 will be sampled. Well GW-10, with a sustained HNu reading of 2.5ppm, will be sampled on level C. Well # GW-03, located on a Recreational Vehicle storage lot, will not be sampled. A site visit (12/91) indicated an HNu reading of 22 ppm sustained, although previous water analyses indicate low levels of organic contaminants.

Surveillance Equipment and Materials: HNu

B. Entry Procedures: N/A

C. Field Investigation and Decontamination Procedures:	
Perimeter Establishment: Zones of Contamination Identified?	No

Public Perimeter Identified? No Map/Sketch Attached? Yes

Notes:

Team Make-Up: EPA X FIT TAT CG STATE OTHER

Station Designation (Name/responsibility):

1. Katherine Baylor, lead sampler, Health and Safety
2. Peter Husby, sampler
3. Clarice Olson, sampler
4. Roseanne Sakamoto, sampler

Work Schedule/Limitations: None. During the February sampling event, heat stress is not expected to be a factor. Modifications may be necessary for future sampling events at this site.

Hot Line Location (initial): None

Command Post - Location (initial): None
 - Radio Call Sign: None
 - Frequency/Channel: None

Equipment and Materials/Special Facilities: None. There is no
phone, water, or electricity available on site.

Decontamination Procedures (contaminated protective clothing, instruments, equipment, etc.): Decontamination of field equipment will consist of a non-phosphate soap wash, deionized water rinse, nitric acid rinse, and hexane rinse. No re-usable protective clothing will be worn. Any disposable clothing (tyvek, gloves) will be discarded.

Disposal Procedures (contaminated equipment, supplies, disposal items, wash water, etc.): All disposable protective clothing (tyvek, gloves) and disposable sampling equipment (rope, pipettes, etc) will be double bagged and transported to the Alameda Field Staging Area for disposal at a municipal landfill in accordance with all local, state, and federal regulations. The hexane rinse will be contained in a separate bucket and allowed to evaporate on-site. Well purge water will be contained in 55-gallon drums for future disposal. If analytical results indicate a low level of contamination (at or near Drinking Water MCLs), the purge water may be disposed of on-site. If the purge water is found to be hazardous, it will be left on-site in 55-gallon drums for disposal as funding permits.

V. EMERGENCY PRECAUTIONS:

Acute Exposure Symptoms

Agent	Symptom	First Aid
<u>Hydrochloric Acid</u>	<u>Choking, burns eyes and skin - colorless gas</u>	<u>flush w/water for 15 min - transport to med. facility</u>
<u>Nitric Acid</u>	<u>Burns, brown stain, suffocating odor</u>	<u>Apply cold water to burn area. Transport to medical facility.</u>
<u>Hexane</u>	<u>Nausea, weakness, lightheadedness</u>	<u>Remove to fresh air. Wash affected area</u>

A. Nearest Hospital Emergency Room. Note: for remote locations, give directions to hospital and attach map.

Name: Norwalk Community Hospital
 Address: 13222 Bloomfield Ave, Norwalk, CA 90650
 Telephone: (213) 863-4763

B. Emergency Services (Telephone Numbers)

1. Fire: 911
2. Police: 911
3. Ambulance 911

C. Poison Control Center of San Francisco
 Toxic and Hazardous Chemicals: 415-476-6600 (24-Hr.)

D. Regional Health and Safety Office: 415-744-1607 or -1606

E. Regional Radiation Representative: 415-744-1048

F. Office of Radiation Programs, Las Vegas Facility (ORP-LVF):
 702-798-2476 FTS 545-2476

APPROVALS:

Project Team Leader:	<u>Karl J. Boyer</u>	Date: <u>1/28/92</u>
Supervisor: (P-3-1)	<u>B. Pettinot</u>	<u>1/28/92</u>
Supervisor: (P-3-2)	<u>Handy</u>	<u>1/29/92</u>
Health and Safety Office:	<u>Denise Wallace</u>	<u>2/3/92</u>

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